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Part III

Environmental Protection Agency

40 CFR Part 260, et al.
Hazardous Remediation Waste
Management Requirements (HWIR-Media);
Final Rule

conditions. In contrast, prevention-oriented hazardous waste regulations are generally implemented independently by facility owner/operators through complying with national regulatory requirements.

2. LDRs, MTRs, and Permitting Raise Problems When Applied to Remediation Wastes

In the HWIR-media proposed rule, EPA identified the application of three RCRA requirements to remediation wastes as the biggest problems to address; Land Disposal Restrictions (LDRs), Minimum Technological Requirements (MTRs), and permitting.

The LDRs (which appear in 40 CFR part 268) generally prohibit land disposal (or "placement" in land-based units) of hazardous wastes until the wastes have met the applicable treatment standards. Often this placement is appropriate and desirable when managing remediation wastes to excavate them from their current locations, and temporarily store the wastes before on-site treatment, or to excavate the wastes and accumulate enough volume to ship off-site cost effectively. By not allowing temporary storage and accumulation in land-based units, the LDRs can be a strong disincentive to excavating and managing remediation waste. The staging pile provisions of today's final rule address this issue by allowing temporary storage and accumulation of remediation wastes in a staging pile without being subject to LDR.

Another example of the problems with LDRs in the cleanup scenario is that contaminated media are often physically quite different from as-generated process wastes. Contaminated soils often contain complex mixtures of multiple contaminants and are highly variable in their composition, handling, and treatability characteristics. For this reason, treating contaminated soils can be particularly complex, involving one or sometimes a series of custom-designed treatment systems. It can be very difficult to treat contaminated soils to the LDR treatment levels. The parts of the HWIR-media proposal that addressed this issue have been finalized in the LDR Phase IV rule (63 FR 28556 (May 26, 1998)).

The MTR requirements were designed as preventative standards for wastes generated through industrial processes. They were not designed for the remedial context. For example, under 40 CFR Subpart F, surface impoundments, waste piles, and land treatment units or landfills must have specific detection, compliance monitoring programs, and corrective action programs for potential

groundwater contamination from the unit. These are appropriate preventative requirements for units managing process wastes. However, many cleanup actions involve short-term placement of remediation wastes into a waste pile, and all of these requirements may not be necessary. The staging piles provisions of today's rule address this issue by allowing the Director to determine appropriate design criteria for the staging pile based on the site-specific circumstances such as the concentration of the wastes to be placed in the unit and the length of time the unit will operate. EPA also explained in the preamble to the CAMU rule additional reasons why LDR and MTR requirements can be counterproductive when managing remediation waste as opposed to as-generated process wastes. To read about these additional reasons, see 58 FR 8658 (8659-8661) (February 16, 1993).

Finally, another area creating roadblocks is permitting. The time-consuming process for obtaining a RCRA permit can delay cleanups, thereby delaying the environmental and public health benefits of cleaning up a contaminated site. For example, the traditional RCRA permitting process requires the facility owner/operator to submit a great deal of information on activities at the facility to EPA or the State, and the permit must include terms and conditions to protect against any improper waste management practices over the long-term active life of an operating facility. Because of the large volume of information submitted, these permits are huge documents and approval often takes several years. However, in the remedial scenario, cleanup activities are generally a one-time project; once the cleanup is completed and the remediation waste is properly treated and disposed, then the activities are completed. Also, these activities are limited to addressing the contamination at the site, and therefore are often more limited in scope than the operating practices of a facility that is engaged in on-going waste treatment, storage and disposal. To overcome the limitations discussed above from traditional RCRA permits, the new Remedial Action Plans (RAPs) requirements in today's rule streamline the process for receiving a permit for treating, storing and disposing of remediation wastes, and require the facility owner/operator to submit significantly less information than for a traditional RCRA permit. However, the information submitted for a RAP application and RAP terms and conditions must be sufficient to ensure

proper waste management of the remediation wastes involved during the life of the cleanup activities.

Furthermore, a facility seeking a traditional RCRA permit to manage remediation wastes on-site must investigate and cleanup their entire facility (facility-wide corrective action). This requirement can deter potential cleanups from happening at all. For instance, facility owners and operators may wish to clean up a small portion of their facility for any number of reasons, such as to avoid future liability, to free the property for sale or other uses, or because they simply wish to restore the environmental health of their property. However, they may not be willing to take on the burden of investigating and cleaning up their entire facility, when it is only a small portion they wish to voluntarily clean up, and they may be reluctant to conduct the cleanup under the RCRA corrective action program. Therefore, to encourage cleanups, under today's final rule, facilities that need a RCRA permit only to treat, store, or dispose of remediation wastes (remediation-only facilities) are not subject to the facility-wide corrective action requirement.

B. How Has EPA Tried to Solve These Problems in the Past?

EPA has tried to solve these problems in the past through a series of regulations and policies; for example;

- The "Area of Contamination" (AOC) policy;
- The "contained-in" policy; and
- The regulations for Corrective Action Management Units (CAMUs), and temporary units.¹

All of these regulations and policies help alleviate some of the problems facing cleanups, but none have completely solved these problems. (See the October 1997 report by the United States General Accounting Office, "Remediation Waste Requirements Can Increase the Time and Cost of Cleanups."²)

The AOC policy allows important flexibility for activities done within a contiguous contaminated area. For example, hazardous remediation wastes may be consolidated or treated *in situ*

¹ 61 FR 18780, 18782 (April 29, 1996), memorandum from Michael Shapiro, Director, Office of Solid Waste, Stephen D. Luftig, Director, Office of Emergency and Remedial Response, and Jerry Clifford, Director, Office of Site Remediation Enforcement, EPA to RCRA Branch Chiefs and CERCLA Regional Managers. (March 13, 1996); 55 FR 8666, 8758-8760 (March 8, 1990); and 58 FR 8658 (February 16, 1993).

² Hazardous Waste: Remediation Waste Requirements Can Increase the Time and Cost of Cleanups. U.S. General Accounting Office, GAO/RCED-98-4, October 1997.

within an AOC without triggering the LDRs or MTRs. However, the AOC policy does not address the permitting issues today's rule is addressing, nor does it address LDR and MTR for wastes removed from an AOC, or treated *ex situ*.

The contained-in policy defines when some contaminated media can be considered to no longer "contain" hazardous waste. When EPA or an authorized State determines that media do not "contain" hazardous waste, RCRA does not generally pose a barrier to remediation because permitting requirements, LDRs (generally), and MTRs do not apply to media that do not contain hazardous waste. However, the contained-in policy is limited to media only, and does not provide any flexibility for other remediation wastes, nor does it provide needed flexibility for highly concentrated media.

The CAMU and temporary unit rules provide much-needed flexibility for unit-specific standards at cleanup sites. CAMUs and temporary units are not subject to LDRs or MTRs. The requirements for these units are set on a site-specific basis, depending on site-specific factors such as the types of wastes being managed (for example, concentrations, volumes, other characteristics) and the period of time the unit will operate. However, CAMUs and temporary units do not address any of the permitting issues that cause problems for remediation wastes.

Because each of these regulations or policies is limited in solving the problems inherent in managing hazardous remediation waste under the RCRA Subtitle C system, EPA felt it was necessary to propose additional solutions.

C. How Did the Proposed Rule Attempt to Solve These Problems?

EPA recognized a continuing need for further reforms than the regulations and policies discussed above had provided, and yet knew that these reforms would be controversial. In 1993, EPA convened a committee under the Federal Advisory Committee Act (FACA) to provide recommendations to EPA on how to make these reforms. The FACA Committee included representatives from environmental groups, regulated industry, the waste management industry, States, and EPA. The FACA Committee met numerous times between January 1993 and September 1994. EPA based the options in the April 29, 1996 HWIR-media proposal on the recommendations and discussions of the FACA Committee.

EPA presented several options for reforms in the HWIR-media proposal.

EPA presented two comprehensive options (the Bright Line and the Unitary Approach), and requested comment on sub-options and issues within those comprehensive options.

1. The "Bright Line" Approach for Contaminated Media

The first comprehensive option, which formed the basis for the proposed rule, was the "Bright Line" option. The Bright Line option would have been limited to "contaminated media" only. Contaminated media was defined to include soils, groundwater, and sediments, but not debris, nor other remediation wastes such as sludges. The Bright Line option got its name from a "line" dividing more highly contaminated media from less contaminated media. That Bright Line was a set of constituent-specific concentrations based on the risks from those constituents. Media found to contain constituents above these concentrations would have remained subject to Subtitle C management requirements (however, the proposal requested comment on some potential modifications to those requirements), and media containing constituents below the concentrations would have been eligible for a determination that it no longer "contained" hazardous waste, thereby generally removing it from Subtitle C jurisdiction.

The determinations of which media were and were not subject to Subtitle C requirements were to be documented in a Remediation Management Plan (RMP) approved by EPA or an authorized State. The RMP would have been an enforceable document that would also have included any requirements for managing media below the Bright Line, and would have served as a RCRA Subtitle C permit for treatment, storage or disposal of media above the Bright Line. The RMP process would have been more streamlined than that required for RCRA permits obtained under the current regulations, and also, at remediation-only facilities, would not have required 3004(u) and (v) facility-wide corrective action, as is required for all RCRA permits before today's rule.

2. Other Options Within the "Bright Line" Approach

Other requirements that EPA proposed to modify were LDR treatment standards for soils that remained subject to Subtitle C requirements, standards applicable to on-site storage and/or treatment of cleanup wastes during the life of the cleanup, and State authorization requirements. New treatment standards would have applied to soils that remained subject to LDRs

under the Bright Line approach. EPA also proposed a new unit called a "remediation pile." Remediation piles could have been used temporarily without triggering LDRs and MTRs, for the on-site treatment or storage of remediation wastes subject to Subtitle C. States picking up any revisions to their RCRA programs (the proposal was not limited to the revisions to remediation waste management programs) could have followed new streamlined authorization procedures. Also, EPA proposed to withdraw the CAMU regulations if the final HWIR-media rule would sufficiently replace the flexibility currently available under the CAMU rule.

Finally, EPA proposed excluding dredged materials from Subtitle C if they were managed under permits issued under the Clean Water Act (CWA) or Marine Protection Research and Sanctuaries Act (MPRSA).

3. The "Unitary" Approach—An Alternative to the "Bright Line"

As an alternative to the Bright Line approach, EPA requested comment on the "Unitary Approach." The Unitary Approach excluded all remediation wastes (irrespective of the concentration of hazardous constituents in the waste and including non-media remediation wastes) managed under a Remedial Action Plan (RAP) (which was very similar to a RMP) from Subtitle C management requirements and made them subject to site-specific requirements in the RAP.

Again, EPA requested comment on the two main comprehensive options, the Bright Line and the Unitary Approach, and on all the sub-issues, such as the proposed elimination of CAMUs, and the new requirements for remediation piles, LDR, RMPs and RAPs, dredged materials, and State authorization.

D. What General Comments did EPA Receive About the Two Major Proposed Options?

Some commenters supported the Bright Line option and thought it was appropriate to distinguish between highly contaminated media and media that were less contaminated, and to regulate them differently.

However, most commenters on the Bright Line option believed that the Bright Line would be too difficult to implement, and therefore should not be finalized. There were several elements of the Bright Line option that commenters were concerned about implementing. One concern was sampling to determine whether media was above or below the Bright Line.

Concentrations of contaminants in environmental media typically are not heterogeneous, and it is difficult to make assumptions about the concentrations of large areas of contamination without taking many samples.

Another concern was how to differentiate between media, debris, and other remediation wastes, such as sludges. Commenters stated that often these different types of remediation waste are all found at the same site and they will all need to be managed, and it would be unduly complicated to have to separate the different types of remediation wastes and manage them separately under separate regulatory requirements.

Also, commenters were concerned about the methodology that EPA used to determine the Bright Line levels themselves. EPA received many specific comments on the proposed Bright Line constituent specific numbers, as well as the choice of which constituents were assigned Bright Line numbers.

With regard to the Unitary Approach, many industry and State commenters supported the Unitary Approach, saying that the flexibility would greatly streamline cleanups and allow more appropriate decisions for managing remediation waste. These commenters emphasized that flexibility was needed so that States could develop cleanup programs with oversight and public participation requirements specific to the concerns, needs, and resources of individual States, and felt that the Unitary Approach most closely addressed those concerns. However, some commenters were concerned that the lack of any national requirements was too open-ended and would not guarantee protectiveness. Commenters were also concerned about the resources required for States and Regions to make site-specific determinations of the appropriate management requirements for remediation wastes at each different site.

Finally, commenters had many specific comments on the elements of these options such as RAPs and RMPs, remediation piles, LDRs, etc. Major comments and EPA's responses are summarized under those more specific sections of this preamble, and all comments are answered specifically in the "response to comments" document for today's rule.

E. What did EPA Decide to do After Considering Those Comments?

EPA has decided to promulgate only selected elements of the HWIR-media proposal in today's rule, rather than go forward with a more comprehensive

approach as proposed. EPA plans to complement the elements finalized today by leaving the CAMU regulations in place, rather than withdrawing these regulations as proposed.

Although EPA conducted a lengthy outreach process before developing the HWIR-media proposal and made every effort to balance the concerns and interests of various stakeholder groups, public comment on the proposal makes it clear that stakeholders fundamentally disagree on many remediation waste management issues.

EPA agreed with commenters' concerns that the Bright Line approach would be too difficult to implement, and that a Bright Line that would satisfy commenters who wanted the Bright Line levels to consist of very conservative levels would not sufficiently reform the system to remove the existing barriers to efficient, protective remediation waste management. EPA has concluded that pursuing broader regulatory reform would be a time- and resource-intensive process that would most likely result in a rule that would provoke additional years of litigation and associated uncertainty. This uncertainty would be detrimental to the program and have a negative effect on ongoing and future cleanups. Based on these conclusions, the Agency has decided not to finalize either the Bright Line or the Unitary Approach, and recognizes that a purely regulatory response will not solve all of the remediation waste management issues that HWIR-media was designed to solve.

While EPA believes the elements finalized today along with the retention of the CAMU rule, will improve remediation waste management and expedite cleanups, the Agency is also convinced that additional reform is needed to expedite the cleanup program, especially to provide greater flexibility for non-media remediation wastes like remedial sludges, address certain statutory permitting provisions, and more appropriate treatment requirements for remediation wastes (for example, treatment that focuses on "principal threats" rather than all underlying hazardous constituents). Therefore, the Agency continues to support appropriate, targeted legislation to address application of RCRA Subtitle C land disposal restrictions, minimum technological and permitting requirements to remediation waste and will continue to participate in discussions on potential legislation. If legislation is not forthcoming, the Agency may reexamine its approach to remediation waste regulation and may take additional administrative action.

The elements finalized in today's rule are:

- Streamlined permitting for treating, storing and disposing of remediation wastes generated at cleanup sites that, among other things, eliminates the requirement for facility-wide corrective action at remediation-only facilities;
- A variation on the proposed remediation piles, called staging piles, modified in response to public comments;
- A RCRA exclusion for dredged materials managed under Clean Water Act (CWA) or Marine Protection Research and Sanctuaries Act (MPRSA) permits; and
- Streamlined procedures for State authorization.

EPA also finalized, in a separate document (63 FR 28604 (May 26, 1998)), the LDR treatment standards specific to hazardous contaminated soil that were proposed in the HWIR-media proposal. EPA is deferring action on the Treatability Sample Exclusion Rule, that EPA requested comments on expanding in the HWIR-media proposal at 61 FR 18817.

EPA will withdraw all other portions of the proposal, such as the proposal under the Bright Line option to distinguish between lower- and higher-risk contaminated media and give regulatory agencies the flexibility to exempt lower-risk contaminated media from RCRA requirements, and the portion of the proposal that proposed to withdraw the CAMU rule.

Existing areas of flexibility for managing remediation waste, such as the contained-in and AOC policies, and site-specific land disposal restrictions treatability variances, continue to be available.

III. Definitions Used in this Rule (§ 260.10)

Some terms defined in today's rule may be difficult to understand when discussed out of context of the rest of the rule; therefore, readers may wish to read the preamble sections on RAPs and staging piles before reading this section on definitions. To discuss related terms together in this preamble, discussion of the definitions is not in alphabetical order (which is how the terms appear in the rule language). The section discusses:

- First the revised definition of "corrective action management unit" or "CAMU," then
- The definition of "remediation waste," then
- "Remediation waste management site" and "facility," then
- "Staging pile," then finally,
- "Miscellaneous unit."



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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AUG 21 1998

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OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Dear Mr. Weissman:

Thank you for your letter of May 11, 1998 and for meeting with us to discuss the Utility Solid Waste Activities Group's (USWAG's), Edison Electric Institute's (EEI's) and the American Gas Association's (AGA's) concerns regarding the effects the land disposal restrictions (LDR) treatment standards published on May 26, 1998 may have on cleanup of manufactured gas plant sites. Like you, we are interested in encouraging and facilitating cleanup of manufactured gas plant sites in a way that is both efficient, economical and protective of human health and the environment. Before addressing the specific concerns raised in your letter, we will review some of the general principles that govern application of RCRA to contaminated soil.

As you know, contaminated soil, of itself, is not hazardous waste and, generally, is not subject to regulation under RCRA. Contaminated soil can become subject to regulation under RCRA if the soil "contains" hazardous waste. EPA generally considers contaminated soil to contain hazardous waste: (1) when soil exhibits a characteristic of hazardous waste; and, (2) when soil is contaminated with hazardous constituents from listed hazardous waste above certain concentrations. 63 FR at 28617 (May 26, 1998).

If contaminated soil contains hazardous waste, then it is subject to all applicable RCRA requirements until the soil no longer contains hazardous waste (i.e., until the soil is decharacterized or, in the case of soil containing listed hazardous waste, until EPA or an authorized state determines that the soil no longer contains listed hazardous waste). In some circumstances, soil that no longer contains hazardous waste, while generally not subject to RCRA requirements, will remain subject to the land disposal restrictions. See 63 FR at 28618 (May 26, 1998) and other sources cited therein. This may be the case if contaminated soil from manufactured gas plants exhibits a hazardous characteristic when first generated (i.e., when first removed from the land) and is subsequently decharacterized. Note that if contaminated soil from manufactured gas plant sites does not exhibit a characteristic of hazardous waste or contain listed hazardous waste when first generated (i.e., when first removed from the land), then the soil is not subject to any RCRA requirements, including the land disposal restrictions. 63 FR 28618 (May

26, 1998)¹

We understand that at some manufactured gas plant cleanup sites, soil is consolidated within an area of contamination prior to being removed from the land (i.e., generated). This practice, and the area of contamination policy generally, is not affected by the May 26, 1998 rulemaking. Contaminated soil may be consolidated within an area of contamination before it is removed from the land (i.e., generated); the determination as to whether the soil exhibits a characteristic of hazardous waste or contains listed hazardous waste may be made after such consolidation. The Agency's most recent guidance on the area of contamination policy is enclosed for your information.

We understand from our discussions that your concerns center around management of contaminated soil that exhibited a characteristic of hazardous waste when first generated but has subsequently been decharacterized. We will address two questions in this letter: (1) what are the Agency's rules and policies concerning land disposal of decharacterized wastes, including decharacterized contaminated soil and (2) when decharacterized contaminated soil remains subject to the land disposal restrictions, what requirements apply prior to land disposal.

1. **What are the Agency's rules and policies concerning land disposal of decharacterized wastes, including decharacterized contaminated soil?**

Decharacterized waste (and decharacterized contaminated soil) is not hazardous waste, and is generally not subject to the Subtitle C regulations. Nonetheless, as you are aware, under certain circumstances decharacterized wastes (and decharacterized contaminated soils) remain subject to LDR treatment requirements. See generally, Chemical Waste Management v. EPA, 976 F.2d 2, 13-14 (D.C. Cir. 1992).

When decharacterized wastes (and decharacterized contaminated soils) remain subject to LDR treatment requirements (i.e., as explained above, when the soils exhibit a hazardous waste characteristic when removed from the land) they must meet applicable LDR treatment standards prior to land disposal, before they can be land disposed, (i.e., before they can be placed in a land disposal unit). RCRA 3004(k) defines land disposal to include, but not be limited to, any placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, or underground mine or cave. Furthermore, EPA has found, in other contexts, that open pits, flat or low walled concrete pads that do not effectively

¹ The exception to this general rule is soil contaminated by listed hazardous waste when the listed hazardous waste is land disposed after the effective date of applicable LDR treatment requirements without meeting such applicable requirements. In this case, the contaminated soil would be subject to land disposal restriction treatment requirements regardless of whether it "contained" hazardous waste when first removed from the land unless there is a finding that hazardous constituent levels are sufficiently low so that threats to human health and the environment posed by land disposal of the soil are minimized. See 63 FR at 28618 (May 26, 1998). As we understand the conditions at most manufactured gas plant cleanup sites, we believe this case will seldom be presented during manufactured gas plant cleanups because soil at manufactured gas plant sites is not typically contaminated by listed hazardous waste.

contain hazardous wastes and hazardous constituents may constitute land disposal. See the enclosed letter from Sylvia Lowrance, U.S. EPA to Richard Wasserstrom dated October 29, 1992. However, EPA's longstanding view is that placement in tanks, containers, and containment buildings is not land disposal. See, e.g., 57 FR 37211 (August 18, 1992) (establishing standards for containment buildings). EPA has established design and operating requirements for tanks, containers and containment buildings used to treat and store hazardous waste. Clearly, units used for treatment or storage of decharacterized contaminated soil which meet these requirements would not be considered land disposal units and may be used to treat or store decharacterized contaminated soil without the approval of EPA or an authorized state. However, since decharacterized contaminated soil is no longer subject to regulation as hazardous waste (except, potentially, for land disposal treatment requirements), treatment and storage units used to manage decharacterized contaminated soil are not hazardous waste management units and do not have to be designed or operated in accordance with RCRA Subtitle C hazardous waste regulations or receive hazardous waste permits. If decharacterized contaminated soil will be treated or stored in a unit which is not a tank, container, or containment building, EPA or an authorized state should make a site-specific determination as to whether or not placement of decharacterized contaminated soil in the unit constitutes land disposal. In making such determinations, in addition to the mandatory consideration of the definition of land disposal in section 3004(k), EPA will consider (and recommends that authorized states similarly consider) the relevant requirements established by the Agency for tanks, containers, and containment buildings and, if these requirements are modified, whether the treatment or storage unit will prevent or control unacceptable releases of decharacterized contaminated soil and hazardous constituents to the environment. These determinations should be made in the context of your ongoing MGP site cleanups and should be included in the public notices which are typically part of cleanup processes. We recognize that determinations about containment units will likely be made predominantly by authorized states and that due to site- and waste-specific variability containment units will have to accommodate the variety of conditions that may be presented during cleanup of MGP sites.

2. When decharacterized contaminated soil remains subject to the land disposal restrictions, what requirements apply prior to land disposal ?

When decharacterized contaminated soil remains subject to the land disposal restrictions, three types of requirements apply. First, the soil must be treated to meet applicable land disposal treatment standards prior to land disposal. Second, as discussed above, prior to land disposal the soil must be treated or stored in an appropriate type of unit (i.e., a unit that is not a land disposal unit). Third, to ensure that applicable land disposal treatment standards are met, certain tracking, paperwork and other requirements must be met.

(a) Treatment to meet applicable land disposal treatment standards. As just noted above, like any other material subject to the land disposal restrictions, decharacterized soils from MGP cleanup sites must be treated to meet applicable land disposal restriction treatment standards prior to land disposal. In the case of contaminated soils subject to the land disposal

restrictions, generators may choose between meeting the universal treatment standard for the contaminating hazardous waste or meeting the alternative soil treatment standards. For decharacterized contaminated soils, meeting the universal treatment standard for the contaminating hazardous waste would require treatment of the formerly characteristic constituent and all underlying hazardous constituents to the universal treatment standards. Meeting the alternative soil treatment standards would require treatment of the formerly characteristic constituent and all underlying hazardous constituents to reduce constituent concentrations by 90 percent or to achieve ten times the universal treatment standard. Note that, as with any other material subject to the land disposal restrictions, contaminated soil may qualify for treatment variances under certain circumstances, see 40 CFR 268.44.

(b) Storage and treatment prior to land disposal. As discussed above, although decharacterized contaminated soil is not hazardous waste and, generally, is therefore not subject to RCRA Subtitle C requirements, because it remains subject to the land disposal restrictions, it must be stored and treated in appropriate units (i.e., units that are not land disposal units) until treatment standards are met.

(c) Tracking, paperwork and other requirements. If decharacterized contaminated soil is stored, the storage prohibition of RCRA 3004(j) generally applies. This means that the decharacterized contaminated soil can only be stored for the purpose of accumulating necessary quantities of hazardous wastes to facilitate proper recovery, treatment, or disposal. See 40 CFR 268.50.

For decharacterized contaminated soil, the reporting and record keeping requirements of 40 CFR 268.9 apply. For example, if characteristic soil from an MGP cleanup is decharacterized at the site where it was generated, then sent off-site for further treatment to achieve LDR standards in a thermal desorption unit, the generator of the contaminated soil must complete a one-time notification and certification. The one-time notification and certification provides a description of the soil as initially generated, including applicable hazardous waste codes, treatability groups, and underlying hazardous constituents. It also provides information about the facility which will receive, and treat, the decharacterized soil. Thus, in this example the generator of the contaminated soil would identify the facility operating the thermal desorption unit. A copy of the one time notification and certification must be placed in the generator's files and sent to the appropriate EPA region or authorized state. These requirements create a tracking system so EPA and authorized states can determine that materials subject to the land disposal restrictions arrive at the right place and are appropriately treated prior to land disposal.

Furthermore, the dilution prohibition of 40 CFR 268.3 applies to the decharacterized contaminated soil until applicable LDR treatment standards are achieved. As you are aware, dilution is normally prohibited as a means of achieving the LDR treatment standards, including for characteristic (and decharacterized) wastes. See Chemical Waste Management v. EPA, 976 F.2d 2, 15-19 (D.C. Cir. 1992).

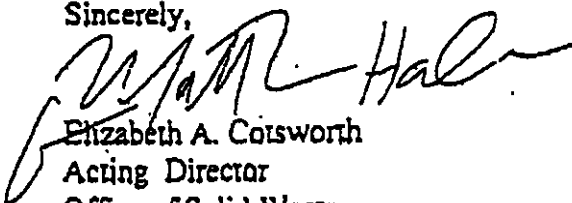
We understand that often decharacterized contaminated soils from MGP cleanup sites are returned to the utility's power plant and mixed with coal or other combustibles prior to burning in a utility boiler. The Agency does not consider this process a form of impermissible dilution. Mixing MGP waste with coal or other combustibles results in a physical change to the waste stream that makes the waste more amenable to combustion (which, in addition to being a type of energy recovery, is a form of treatment that destroys or removes the hazardous constituents), and thus facilitates proper treatment.

In addition to mixing with coal or other combustibles, other types of mixing or treatment of decharacterized contaminated soil may be permissible prior to final treatment, provided that these processes produce chemical or physical changes and do not merely (1) dilute the hazardous constituents into a larger volume of waste so as to lower the constituent concentration or (2) release excessive amounts of hazardous constituents to the air. If mixing or other pre-treatment is necessary to facilitate proper treatment (e.g., destruction or removal, such as burning in a boiler) in meeting the treatment standards then dilution is permissible. See 51 FR 40592 (November 7, 1986) and 53 FR 30911 (August 16, 1988).

Note that, in some instances, burning decharacterized contaminated soil mixed with coal in a utility boiler may implicate the Bevill amendment. As you are aware, EPA's position is that wastes which are covered by the Bevill amendment are not subject to LDR requirements. 40 CFR 268.1(b); see also Horsehead Resource Development Co. v. Browner, 16 F. 3d 1246, 1260-61 (D.C. Cir. 1994) (upholding EPA's position). Consequently, if decharacterized contaminated soil is burned in utility boilers along with coal and the resulting combustion ash is within the scope of the Bevill amendment, LDR standards do not have to be met for that ash, nor would the decharacterized contaminated soils be considered to be a prohibited waste. In this case, the only reporting and recordkeeping requirement required is a one-time notice kept in the facility's records. See 40 CFR 268.7 (a)(7).

We appreciate your patience with the Agency in responding to your concerns. If you need further assistance, please contact Rita Chow of my staff at (703) 308-6158.

Sincerely,



Elizabeth A. Coisworth
Acting Director
Office of Solid Waste

Enclosure (2)

Tuesday
May 26, 1998

Federal Register

Part II

Environmental Protection Agency

40 CFR Parts 148, 261, 266, 268, and 271
Land Disposal Restrictions Phase IV:
Final Rule Promulgating Treatment
Standards for Metal Wastes and Mineral
Processing Wastes; Mineral Processing
Secondary Materials and Bevill Exclusion
Issues; Treatment Standards for
Hazardous Soils, and Exclusion of
Recycled Wood Preserving Wastewaters;
Final Rule

EPA also emphasizes that any dilution of a prohibited contaminated soil (or of a prohibited hazardous waste with soil) as a substitute for adequate treatment to achieve compliance with LDR treatment standards or to circumvent the effective date of an LDR prohibition is considered a type of impermissible dilution and is illegal. Therefore, any deliberate mixing of prohibited hazardous waste with soil in order to change its treatment classification (i.e., from waste to contaminated soil) is illegal. Existing regulations concerning impermissible dilution already make this point. See 40 CFR 268.3(a) and (b); see also 57 FR at 37243 (Aug. 18, 1992) (adopting the same principle for contaminated debris). The Agency expects that deliberate mixing of hazardous waste with soil (and vice versa) will be rare because such actions are clearly illegal and would subject generators to substantial fines and penalties, including criminal sanctions. In addition, the resulting mixture (hazardous waste impermissible diluted by soil) would continue to be subject to the LDRs for the original hazardous waste (i.e., generally, the universal treatment standards), so no benefit in terms of reduced treatment requirements would occur. The Agency took a similar approach when promulgating treatment standards specific to hazardous debris. See 57 FR at 37224 (August 18, 1992).

The Agency notes that the normal mixing of contaminated soil from various portions of a site that typically occurs during the course of remedial activities or in the course of normal earthmoving and grading activities is not considered intentional mixing of soil with non-media or prohibited soil with non-prohibited soil and, therefore, is not a type of impermissible dilution.

D. Seeking Treatment Variances Because the National Treatment Standard is Unachievable or Inappropriate

Under existing regulations at 40 CFR 268.44, people may obtain a variance from a land disposal restriction treatment standard when a waste cannot be treated to the specified level or when a treatment standard may be inappropriate for the waste. With respect to contaminated soils, EPA has to this point presumed that a treatment variance would generally be needed because the LDR treatment standards developed for process wastes were either unachievable (generally applied to soil contaminated by metals) or inappropriate (generally applied to soil contaminated by organic constituents). See, for example, 55 FR 8760 (March 8,

1990); 58 FR 48092, 48125 (September 14, 1993); 61 FR 18805-18808, 18810-18812 (April 29, 1996); and, 61 FR 55717 (October 28, 1996). This presumption will no longer apply once today's soil treatment standards take effect. This is because today's standards were developed specifically for contaminated soils and are intended to specifically address the past difficulties associated with applying the treatment standards developed for process waste to contaminated soil.

This is not to say that treatment variances based on the "unachievable" or "inappropriate" prongs of the test are now unavailable for contaminated soils. For example, in some cases it may prove that even though an appropriate technology, suited to the soil matrix and constituents of concern was used, a particular soil cannot be treated to meet the soil treatment standards using a well-designed well-operated application of one of the technologies EPA considered in establishing the soil standards. In these types of cases, under existing regulations, the soil treatment standard would be considered "unachievable" and a treatment variance could be approved. In other cases, under existing regulations, application of the soil treatment standards might be "inappropriate" in that, for example, it would present unacceptable risks to on-site workers.

As noted earlier in today's preamble, alternative LDR treatment standards established through treatment variances must, according to 40 CFR 268.44(m), "minimize threats to human health and the environment posed by land disposal of the waste." In cases where an alternative treatment standard does not meet this requirement, a treatment variance will not be approved even though application of a technology more aggressive than the technologies on which the soil treatment standards are based might then be necessary. For example, in cases where the soil treatment standards cannot be achieved through application of a well-designed, well-operated application of one of the model soil treatment technologies and application of the model technology or other non-combustion technologies will not result in constituent concentrations that minimize threats, a variance would not be approved and combustion would be necessary. This is proper given that the soil treatment standards were not developed using the methodology typically used in the land disposal restriction program (i.e., application of the most aggressive treatment technology to the most difficult to treat waste), but, instead are designed to accommodate a variety of soil treatment

technologies that are typically used during remediation. Variances for treatment of contaminated soil will be applied during the remedial context, where, as discussed in Section VII.B.3 of today's preamble, EPA and authorized states will typically have detailed information about the risks posed by specific hazardous constituents, direct and indirect exposure routes, risk pathways and human and environmental receptors. This information can be used to inform decisions about whether threats are minimized.

E. The Contained-In Policy

The contained-in principle is the basis for EPA's longstanding interpretation regarding application of RCRA Subtitle C requirements to mixtures of contaminated media and hazardous wastes. Under the "contained-in" policy, EPA requires that soil (and other environmental media), although not wastes themselves, be managed as if they were hazardous waste if they contain hazardous waste or exhibit a characteristic of hazardous waste. See, for example, 53 FR 31138, 31148 (August 17, 1988) and 57 FR 21450, 21453 (May 20, 1992) (inadvertently citing 40 CFR 261(c)(2) instead of 40 CFR 261.3(d)(2)); see also *Chemical Waste Management v. EPA*, 869 F.2d 1526, 1539-40 (D.C. Cir. 1989) (upholding the contained-in principle as a reasonable interpretation of EPA regulations). In practice, EPA has applied the contained-in principle to refer to a process where a site-specific determination is made that concentrations of hazardous constituents in any given volume of environmental media are low enough to determine that the media does not "contain" hazardous waste. Typically, these so called "contained-in" determinations do not mean that no hazardous constituents are present in environmental media but simply that the concentrations of hazardous constituents present do not warrant management of the media as hazardous waste.⁴⁶ For contaminated soil, the result of "contained-in determinations" is that soil no longer "contains" a

⁴⁶ Of course, as noted earlier, EPA or an authorized state could determine, at any time, that any given volume of environmental media did not contain (or no longer contained) any solid or hazardous waste (i.e., it's just media). These types of determinations might be made, for example, if concentrations of hazardous constituents fall below background levels, or are at non-detectable levels. Such a determination would terminate all RCRA Subtitle C requirements, including LDRs. See, September 15, 1995 letter from Michael Shapiro (EPA) to Peter Wright (Monsanto Company), making this finding, and 61 FR 18805 (April 29, 1996).

hazardous waste; however, as discussed above, the result is not automatically that soil no longer must comply with LDRs.

In order to preserve flexibility and because EPA believes legislative action is needed, the Agency has chosen, at this time, not to go forward with the portions of the September 14, 1993 or April 29, 1996 proposals that would have codified the contained-in policy for contaminated soils. The Agency continues to believe that legislation is needed to address application of certain RCRA subtitle C requirements to hazardous remediation waste, including contaminated soil. If legislation is not forthcoming, the Agency may, in the future, re-examine its position on the relationship of the contained-in policy to site-specific minimize threat determinations based on implementation experience and/or may choose to codify the contained-in policy for contaminated soil in a manner similar to that used to codify the contained-in policy for contaminated debris.

1. Current Guidance on Implementation of the Contained-in Policy

EPA has not, to date, issued definitive guidance to establish the concentrations at which contained-in determinations may be made. As noted above, decisions that media do not or no longer contain hazardous waste are typically made on a case-by-case basis considering the risks posed by the contaminated media. The Agency has advised that contained-in determinations be made using conservative, health-based levels derived assuming direct exposure pathways. 61 FR at 18795 (April 29, 1996) and other sources cited therein. A compilation of many of the Agency's statements on the contained-in policy has been placed in the docket for today's rulemaking.

The land disposal restriction treatment standards for contaminated soil promulgated today do not affect implementation of the contained-in policy. They are not considered, and should not be used, as de facto "contained-out" concentrations although, in some cases, it may be appropriate to determine that soil treated to the soil treatment standards no longer contains hazardous waste. Remediation project managers should continue to make contained-in decisions based on site-specific conditions and by considering the risks posed by any given contaminated media.

2. Relationship of the Contained-In Policy to Site-Specific, Risk-Based Minimize Threat Determinations

As discussed above, the D.C. Circuit held in the Chemical Waste opinion that the RCRA Section 3004(m) obligation to minimize threats can continue even after a waste would no longer be identified as "hazardous." *Chemical Waste Management v. EPA*, 976 F.2d at 13-16. The Agency believes that it is prudent to apply the logic of the Chemical Waste opinion to contaminated soil. Therefore, when the contained-in policy is applied to soil that is already subject to a land disposal prohibition, the Agency is compelled to decide if a determination that soil does not or no longer "contains" hazardous waste is sufficient to determine that threats posed by subsequent land disposal of those soils have been minimized. As discussed earlier in today's preamble, EPA is not, at this time, able to make a generic finding that all contained-in determinations will automatically satisfy this standard. This is largely because, for reasons of needed administrative flexibility and because we believe legislation is needed, EPA has not codified standards for approving contained-in determinations and has not codified procedures for making such determinations. Absent such standards and procedures, the Agency cannot, at this time, make a generic finding that all contained-in determinations will result in constituent concentrations that also minimize threats within the meaning of RCRA Section 3004(m). These decisions, of course, could be made on a site-specific basis, by applying the standards and procedures for site-specific, risk-based minimize threat variances, promulgated today.

The regulations governing site-specific, risk-based minimize threat determinations promulgated today are, essentially, the same as the Agency's guidance for making contained-in determinations. See, for example, 61 FR 18795 (April 29, 1996) and other sources cited therein. That is, decisions should be made by considering the inherent risks posed by any given soil, assuming direct exposure (i.e., no post-land disposal controls) and applying conservative information to calculate risk. Therefore, the Agency expects that, in most cases, a determination that soils do not (or no longer) contain hazardous waste will equate with minimize threat levels and, therefore, encourages program implementors to combine contained-in determinations, as appropriate, with site-specific, risk-based minimize threat variances.

F. Relationship of Soil Treatment Standards to the Final HWIR-Media Rule

In the April 29, 1996 HWIR-Media proposal, EPA proposed to establish a comprehensive alternative management regime for hazardous contaminated media, of which the treatment standards for contaminated soil would have been a small part. The HWIR-Media proposal discussed a number of options for comprehensive management standards for hazardous contaminated media.

Today's action resolves and finalizes the portion of the HWIR-Media proposal that addressed land disposal restriction treatment standards for contaminated soil. See 61 FR 18805-18814, April 29, 1996. Other portions of the proposal are not resolved by this action and will be addressed by EPA in future actions. EPA continues to emphasize that, while the soil-specific LDR treatment standards will improve contaminated soil management and expedite cleanups, the Agency also recognizes that additional reform is needed, especially for management of non-media remediation wastes like remedial sludges. The Agency will continue to participate in discussions on potential legislation to promote this additional needed reform.

VIII. Improvements and Corrections to LDR Regulations

Summary: The regulated community has pointed out several examples of the LDR regulations that were unclear or had typographical errors. These sections are clarified and corrected below.

A. Typographical Error in Section 261.1(c)(10)

A typographical error was found in the cross reference in the note in § 261.1(c)(10). The first Phase IV final rule ("Minimize," 62 FR 25998) said "They are covered under the exclusion from the definition of solid waste for shredded circuit boards being recycled (261.4(a)(13))." The correct cross reference is to "(261.4(a)(14))." This typographical error is corrected in this final rule.

B. Typographical Error in Section 268.4(a)(2)(ii) and (a)(2)(iii)

These paragraphs have referred to § 268.8 for some time. Section 268.8 was where the so called "soft hammer" provisions were once found in the regulations. These provisions expired in 1990, and the provisions have been removed from the regulations; thus there is no need to continue to include references to § 268.8.

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Part II

Environmental Protection Agency

40 CFR Part 260, et al.
Requirements for Management of
Hazardous Contaminated Media;
Proposed Rule

media would again become subject to Subtitle C regulation. Understanding the role of the Bright Line and the contained-in principle is essential to understanding how today's proposal would work. Both the contained-in principle and the Bright Line are explained below.

a. The contained-in principle in today's proposed rule background. The contained-in principle is the basis for EPA's longstanding policy regarding the application of RCRA Subtitle C requirements to mixtures of environmental media (e.g., soils, ground water, sediments) and hazardous wastes. This concept has been discussed previously in several Agency directives and in several RCRA rulemakings. (See, e.g., 58 FR 48092, 48127 (September 14, 1993)). In today's proposed rule the Agency is expanding this concept as the basis for allowing EPA or an authorized State to exempt certain contaminated media from the stringent, prevention-oriented RCRA regulations for hazardous waste management that previously would have applied.

The contained-in concept was originally developed to define the regulatory status of environmental media that are contaminated with hazardous wastes. The mixture rule at 40 CFR 261.3(a)(2)(iv) states that "a mixture of solid waste and one or more [listed] hazardous wastes" constitutes a listed waste itself (emphasis added). Similarly, the derived-from rule at 40 CFR 261.3(c)(2)(i) provides that "a solid waste generated from the treatment, storage, or disposal of a hazardous waste" is a hazardous waste (emphasis added).

Since media are not solid wastes, these rules do not apply to mixtures of media and hazardous wastes. However, two other regulations subject contaminated media to Subtitle C requirements. Under 40 CFR 261.3(c)(1) a "hazardous waste will remain a hazardous waste" unless and until certain specified events occur. Under 40 CFR 261.3(d)(2) a "waste which contains" a listed waste remains a hazardous waste until it is delisted. Together these regulations provide for continued regulation of hazardous wastes even after they are released to the environment and mingled with media.

The U.S. Court of Appeals for the District of Columbia Circuit upheld this interpretation of §§ 261.3(c)(1) and (d)(2) in *Chemical Waste Management Inc. v. EPA*, 869 F.2d 1526, 1538-40 (D.C. Cir. 1989), and EPA has explained the policy and its regulatory basis in numerous preambles and letters. (See 53 FR 31138, 31142, 31148 (Aug. 17, 1988);

57 FR 21450, 21453 (May 20, 1992) (inadvertently citing 40 CFR 261(c)(2) in lieu of § 261.3(d)(2)); memorandum from Marcia E. Williams, Director, EPA Office of Solid Waste, to Patrick Tobin, EPA Region IV (Nov. 15, 1986); letter from Jonathan Z. Cannon, EPA Acting Assistant Administrator, Office of Solid Waste and Emergency Response, to Thomas Jorling, Commissioner, New York Department of Environmental Conservation (June 19, 1989); and letter from Sylvia K. Lowrance, Director, EPA Office of Solid Waste, to John Ely, Enforcement Director, Virginia Department of Waste Management (Mar. 26, 1991). Under the contained-in policy, media contaminated with listed hazardous wastes are not wastes themselves, but they contain hazardous wastes and must therefore be managed as hazardous wastes until they no longer contain the waste. This concept is based on the idea that at some point (e.g., at some concentration of hazardous constituents) the media would no longer contain the hazardous waste, or be subject to RCRA Subtitle C regulations.

Because the regulations that serve as the basis for the contained-in policy are part of the "base" RCRA program that was in effect prior to 1984, the Agency has taken the position that EPA or the State agency authorized to administer the "base" RCRA regulations may determine whether media contain listed wastes. Decisions that media no longer contain listed hazardous wastes (or "contained-in" decisions) have typically been made on a case-by-case basis, according to the risks posed by the contaminated media. The Agency has not issued any definitive guidance or regulations for determining appropriate contained-in levels; however, EPA Regions and States have been advised that conservative, health-based levels derived from direct exposure pathways would clearly be acceptable as "contained-in" levels. (See memorandum from Sylvia K. Lowrance to Jeff Zelikson, Region IX, (January 24, 1989)). It has been the common practice of EPA and many States to specify conservative, risk-based levels calculated with standard conservative exposure assumptions (usually based on unrestricted access), or site-specific risk assessments.

With regard to mixtures of media and characteristic wastes, EPA has often stated that media are regulated under RCRA Subtitle C if they exhibit a hazardous waste characteristic. (See 57 FR 21450, 21453, (May 20, 1992)). But, since media generally are not wastes, they become regulated when they have been contaminated with solid or hazardous wastes and the resultant

mixture exhibits a characteristic. EPA has also taken the position that contaminated media cease to be regulated as hazardous waste when sufficient quantities of hazardous constituents are removed so that the mixture ceases to exhibit a characteristic⁸ (57 FR 21450, 21453, May 20, 1992).

The contained-in concept in today's proposed rule. One of the primary objectives of today's proposal is to remove lower risk contaminated media from Subtitle C jurisdiction so that more appropriate, site-specific management requirements can be specified by the overseeing Agency. For the purpose of this rulemaking EPA has chosen to use the contained-in concept as the basis for allowing these materials to be exempted from Subtitle C requirements. In formulating the proposal, the Agency considered alternative concepts that might be provided under the RCRA statute that would produce the same or similar exemption. Those concepts are discussed in section (VI)(A)(2) of this preamble.

Today's proposal would allow two separate regulatory regimes to be applied to the management of contaminated media under EPA or State-approved cleanups. For media determined to contain hazardous wastes, modified LDR treatment standards would apply, as would other applicable Subtitle C requirements. For media determined not to contain hazardous wastes, Subtitle C requirements would generally not apply, and the State or EPA would have considerable discretion in applying appropriate management standards.

The proposed rule would limit an overseeing agency's discretion to make site-specific decisions that media no longer contain wastes by specifying "Bright Line" concentration levels. Media that are contaminated below Bright Line concentrations would be eligible for contained-in decisions by the overseeing Agency. However, Bright Line concentrations would not constitute an automatic exemption from Subtitle C; rather, they would represent the concentration below which the State or EPA might determine that media do not contain hazardous waste.

As described below, EPA believes it would generally be acceptable to make a decision that media do not contain hazardous waste at the Bright Line concentrations specified in today's proposal. However, the proposed rule is

⁸ Recent developments under the RCRA land disposal restrictions (LDRs) may suggest a qualification to this latter point. (See discussion of LDRs in section (V)(C) of today's preamble.)

designed to provide for site-specific discretion in making such decisions.

Thus, it is possible that some States might choose to specify—on a site-specific basis, more broadly as a matter of policy, or in regulations—contained-in levels that are lower (i.e., more stringent) than the Bright Line concentrations specified in today's proposal. Moreover, States can be more stringent than the Federal program, and adopt lower Bright Line concentrations.

In applying the contained-in concept, today's proposed rule does not distinguish between media that are contaminated with listed hazardous wastes, and media that exhibit a hazardous waste characteristic. In both cases, it is the concentration levels of the individual hazardous constituents in the media that determine how the media will be regulated under Part 269. The origin of the constituents (i.e., listed wastes or characteristic hazardous wastes) is irrelevant in comparing measured levels in the media with Bright Line concentrations and/or contained-in concentrations.

EPA sees no reason to apply the Bright Line concept differently to media contaminated with listed hazardous wastes and media that exhibit a hazardous characteristic. In either case, the media could presumably be contaminated with the same types of hazardous constituents, at similar concentrations, that would present similar potential risks if mismanaged. Thus, applying these rules differently, depending on how the media came to be regulated as hazardous, would be unnecessary and artificial, and would further complicate how these rules would be implemented in the field.

EPA recognizes that today's rule could have the effect of excluding from Subtitle C regulation some media that until now have been considered hazardous—i.e., media that exhibit a hazardous waste characteristic, with constituent concentrations below the Bright Line and EPA or the State makes a determination that the media no longer contain hazardous waste (often based on protective management controls). However, EPA believes that there is no compelling environmental rationale for not including such media in Part 269 regulation. The risk presented even by characteristic wastes is dependent on site-specific circumstances. Therefore, because today's proposal would require the Director to impose any management controls on contaminated media that are necessary to protect human health and the environment, whether the media is contaminated with listed or characteristic waste is unimportant.

Under today's proposed rule, contained-in decisions would be documented in the site's approved Remediation Management Plan (RMP). If an approved RMP expires or is terminated, the provisions of today's proposal would no longer apply. Therefore, all contaminated media that are addressed in the RMP (i.e., media that are contaminated both above and below contained-in concentrations) would again prospectively be subject to the "base" Subtitle C regulations. For example, if a cleanup of contaminated soil was half completed when a RMP was terminated or expired, the half that was completed in compliance with the RMP while it was in effect, would continue to be considered to be in compliance. For example, if contaminated soil was determined not to contain hazardous waste, and was disposed of in a Subtitle D landfill according to the requirements of the RMP, that Subtitle D landfill would not be considered retroactively to have accepted hazardous wastes. The half of the cleanup that was not completed when the RMP was terminated or expired, however, would have to be completed prospectively in compliance with the non-Part 269 Subtitle C regulations.

Effect of contained-in decisions under today's rule. Once the overseeing Agency has made a decision that media with constituents at certain concentrations no longer contain hazardous wastes (i.e., "a contained-in decision"), the media would no longer be regulated as hazardous wastes under Federal RCRA regulations (§ 261.4(g) and § 269.4(a)).⁹ The Agency requests comments, however, on whether the Agency should exempt the media instead, only if it were managed in compliance with the provisions of the RMP. The Agency did not propose this approach primarily because it could be unduly harsh, since any violation, no matter how minor, would result in a reversion to Subtitle C. However, this approach could be incorporated into RMPs on a case-by-case basis, where the Director could specify in the RMP the provision(s) whose violation would result in a reversion to Subtitle C regulation. (See discussion below).

A contained-in decision for wastes at a cleanup site would not, however, eliminate the Administrator's authority to require the owner/operator (or other

responsible parties at sites not regulated by RCRA) to conduct remedial actions for media that do not contain hazardous wastes. Specifically, Federal cleanup authorities under RCRA section 3004(u) at TSDFs, section 7003, and CERCLA authorities, authorize the Agency to require cleanup of a broad spectrum of hazardous constituents and/or hazardous substances, however, the presence of hazardous waste(s) in media is not a requirement for exercising those authorities. Many State cleanup authorities have similar provisions.

Decision factors for contained-in decisions. Because the Agency does not want to constrain site-specific decision-making, today's proposed rule would not mandate specific factors for making contained-in decisions, but would allow the Director to base these decisions on appropriate site-specific factors. However, EPA requests comments on whether decision factors should be codified for making contained-in decisions. EPA believes that the Bright Line concentrations will generally be acceptable for contained-in decisions; however, decision factors could help authorities determine, on a site-specific basis, what types of management controls (see discussion below), if any, would make the Bright Line concentrations appropriate concentrations at which to make contained-in decisions. Decision factors could also aid in determining other appropriate levels at which to make contained-in decisions.

Given the multiplicity of different types of sites, EPA requests comments on what decision factors, if the Agency decided to include them in the final rule, would ensure consistent decision-making, and yet keep the process efficient and flexible. Although EPA does not believe it would be appropriate to do a risk assessment at every site, particularly if the cleanup is of a relatively simple nature, the Agency does believe that the following factors (adapted from the LDR proposal for hazardous soils) contain the types of information that may be appropriate (depending on the specific circumstances at a given site) to consider in making contained-in decisions:

- Media properties;
- Waste constituent properties (including solubility, mobility, toxicity, and interactive effects of constituents present that may affect these properties);
- Exposure potential (including potential for direct human contact, and potential for exposure of sensitive environmental receptors, and the

⁹ The Agency notes, however, that by explicitly providing in § 261.4 that decisions under Part 269 that media no longer contain hazardous waste are not subject to most Subtitle C regulations, EPA would not intend to affect in any way the authority of EPA and authorized States to make contained-in decisions outside of the HWIR-media context.

- effect of any management controls which could lessen this potential);
- Surface and subsurface properties (including depth to groundwater, and properties of subsurface formations);
- Climatic conditions;
- Whether the media pose an unacceptable risk to human health and the environment; and
- Other site or waste-specific properties or conditions that may affect whether residual constituent concentrations will pose a threat to human health and the environment.

Most of these factors were proposed in the LDR proposal for hazardous soil (58 FR 48092, September 14, 1993) as decision factors that might be considered by the Director in making contained-in decisions. If the proposal for hazardous soil had been finalized, it would have codified the contained-in principle for hazardous soil. Today's suggested factors differ from those in the hazardous soil proposal in one significant respect. The Agency has determined that it may be appropriate, when assessing "exposure potential," to consider site-specific management controls imposed by the Director that limit potential exposures of human or environmental receptors to media. The Agency made this change because EPA believes that States overseeing cleanups might determine that media that would have traditionally been considered to contain hazardous waste (e.g., media that contained listed wastes and posed an unacceptable risk under traditional exposure scenarios) no longer presented a hazard (and thus did not contain "hazardous" waste), based on site-specific management controls imposed by the Director.

This position is based upon EPA's understanding that RCRA provides EPA and the States the discretion to determine that a waste need not be defined as "hazardous" where restrictions are placed on management such that no improper management could occur that might threaten human health or the environment. (See definition of hazardous waste at RCRA section 1004(5)(B)). The HWIR-waste proposal included a full discussion of the legal basis for this position. For the sake of clarity, it is repeated below (60 FR 66344-469, Dec. 21, 1995).

EPA's original approach to determining whether a waste should be listed as hazardous focused on the inherent chemical composition of the waste, and assumed that mismanagement would occur, causing people or organisms to come into contact with the waste's constituents. (See 45 FR 33084, 33113, (May 19,

1980)). Based on more than a decade of experience with waste management, EPA believes that it is inappropriate to assume that worst-case mismanagement will occur. Moreover, EPA does not believe that worst-case assumptions are compelled by statute.

In recent hazardous waste listing decisions, EPA identified some likely "mismanagement" scenarios that are reasonable for almost all wastewaters or non-wastewaters, and looked hard at available data to determine if any of these are unlikely for the specific wastes being considered, or if other scenarios are likely, given available information about current waste management practices. (See the Carbamates Listing Determination (60 FR 7824, February 9, 1995) and the Dyes and Pigments Proposed Listing Determination (59 FR 66072, December 22, 1994)). Further extending this logic, EPA believes that when a mismanagement scenario is not likely, or has been adequately addressed by other programs, the Agency need not consider the risk from that scenario in deciding whether to classify the waste as hazardous.

EPA believes that the definition of "hazardous waste" in RCRA section 1004(5) permits this approach to hazardous waste classification. Section 1004(5)(B) defines as "hazardous" any waste that may present a substantial present or potential hazard to human health or the environment "when improperly * * * managed." EPA reads this provision to allow it to determine the circumstances under which a waste may present a hazard and to regulate the waste only when those conditions occur. Support for this reading can be found by contrasting section 1004(5)(B) with section 1004(5)(A), which defines certain inherently dangerous wastes as "hazardous" no matter how they are managed. The legislative history of Subtitle C of RCRA also appears to support this interpretation, stating that "the basic thrust of this hazardous waste title is to identify what wastes are hazardous in what quantities, qualities, and concentrations, and the methods of disposal which may make such wastes hazardous." H. Rep. No. 94-1491, 94th Cong., 2d Sess. 6 (1976), reprinted in, "A Legislative History of the Solid Waste Disposal Act, as Amended," Congressional Research Service, Vol. 1, 567 (1991) (emphasis added).

EPA also believes that section 3001 gives it flexibility in order to consider the need to regulate as hazardous those wastes that are not managed in an unsafe manner (section 3001 requires that EPA decide, in determining whether to list or otherwise identify a waste as hazardous waste, whether a

waste "should" be subject to the requirements of Subtitle C). EPA's existing regulatory standards for listing hazardous wastes reflect that flexibility by allowing specific consideration of a waste's potential for mismanagement. (See § 261.11(a)(3) (incorporating the language of RCRA section 1004(5)(B)) and § 261.11(c)(3)(vii) (requiring EPA to consider plausible types of mismanagement)). Where mismanagement of a waste is implausible, the listing regulations do not require EPA to classify a waste as hazardous, based on that mismanagement scenario.

Two decisions by the U.S. Court of Appeals for the District of Columbia Circuit provide potential support for the approach to defining hazardous waste, in *Edison Electric Institute v. EPA*, 2 F.3d 438, (D.C. Cir. 1993) the Court remanded EPA's RCRA Toxicity Characteristic ("TC") as applied to certain mineral processing wastes because the TC was based on modeling of disposal in a municipal solid waste landfill, yet EPA provided no evidence that such wastes were ever placed in municipal landfills or similar units. This suggests that the Court might approve a decision to exempt a waste from Subtitle C regulation if EPA were to find that mismanagement was unlikely to occur. In the same decision the Court upheld a temporary exemption from Subtitle C for petroleum-contaminated media because such materials are also subject to Underground Storage Tanks regulations under RCRA Subtitle I. The court considered the fact that the Subtitle I standards could prevent threats to human health and the environment to be an important factor supporting the exemption. *Id.* At 466. In *NRDC v. EPA*, 25 F.3d 1063 (D.C. Cir. 1994) the Court upheld EPA's finding that alternative management standards for used oil promulgated under section 3014 of RCRA reduced the risks of mismanagement and eliminated the need to list used oil destined for recycling. (The Court, however, did not consider arguments that taking management standards into account violated the statute because petitioners failed to raise that issue during the comment period.)

The Agency believes, therefore, that EPA and the States may consider site-specific management controls when making contained-in decisions pursuant to proposed Part 269. EPA believes that this approach is especially appropriate in the Part 269 context, because of the significant level of oversight generally given to cleanup actions. Management controls that are tailored to site-specific

circumstances and imposed in enforceable documents, and State or EPA oversight of cleanup activities, would ensure that the site-specific management controls that the Director relied upon in making each contained-in decision would continue to be implemented. In addition (although EPA is not proposing to require it as a federal matter), States may want to consider making such contained-in decisions conditional; i.e., media would only be considered nonhazardous so long as they were managed in the manner considered by the Director in making the contained-in decision. Deviations (any, or specific ones) would result in a reversion to Subtitle C regulation.

EPA specifically requests comments on the following: (1) Should the Agency specify a list of criteria to consider; (2) should the Agency prepare decision factors as guidance; (3) should the Agency promulgate decision factors as part of the final rule; (4) are the above decision factors appropriate for making these decisions; (5) if so, should the criteria listed above be more or less specific regarding the conditions that would allow or preclude contained-in decisions; (6) are there other factors the Director should consider when making contained-in decisions, in addition to those listed above; and (7) should there be fewer factors to consider?

b. Issues associated with hazardous debris. When EPA promulgated land disposal treatment standards for hazardous debris, it also codified the contained-in principle for debris contaminated with listed hazardous waste. (See 57 FR 37194, 37221, (August 18, 1992)). At the time EPA codified the contained-in principle for hazardous debris, it was the Agency's practice to make contained-in decisions at "health-based,"¹⁰ levels, thus a decision that debris no longer contain hazardous waste would clearly also constitute a "minimize threat" determination for purposes of RCRA section 3004(m). Therefore, contained-in decisions under 40 CFR 260.3(f)(3) also eliminate the duty to comply with the land disposal restriction requirements of 40 CFR Part 268. EPA requests comments on whether the contained-in principle codified for hazardous debris is adequate or whether the contained-in policy should be applied to debris in the same way today's proposed rule applies it to hazardous contaminated media. For example, should contained-in decisions for debris incorporate the Bright Line concept? If a Bright Line is established

for debris, should it be the same as the Bright Line in today's proposed rule for hazardous contaminated media or would some other Bright Line values or methodology be more appropriate for debris? Are there issues associated with requiring that debris be tested to determine if it has constituent concentrations greater than Bright Line concentrations? Is testing routinely too complicated for debris matrices? Should contained-in decisions for debris be based on determinations made for media co-located with the debris (i.e., if debris were located in the same area as media that was determined not to contain hazardous wastes, should the debris be presumed not to contain hazardous wastes)? Similarly, if debris is located in the same area as media that have constituent concentrations less than Bright Line concentrations, should the debris be presumed to also be below the Bright Line?

Alternatively, should the Director be able to make contained-in decisions, as they are described in today's proposed rule, without application of the Bright Line to debris (as we are proposing for sediment)? (See preamble (V)(A)(4)(c)). If allowed, should these contained-in decisions replace the existing contained-in decisions available for debris or should the existing contained-in decisions be maintained with non-Bright Line contained-in decisions (as discussed in today's proposed rules addressing sediments—see preamble (V)(A)(4)(c)) available for debris managed under a RMP? Are other combinations of the existing debris contained-in decision provisions and the contained-in decision provision for media in today's proposed rule appropriate?

While today's proposed rule does not include changes to the existing contained-in principle as applied to debris contaminated with listed hazardous waste, EPA could include revisions to the standard in response to public comment. Issues associated with hazardous debris and the possibility of including debris in the final Part 269 rules are also discussed in sections (V)(C)(10) and (V)(A)(2) of today's preamble.

c. The Bright Line. One of the key features of the "Harmonized Approach" developed through the FACA process was the concept of a "Bright Line." The Bright Line would divide contaminated media into two different categories, which would be subject to two different regulatory regimes. Although straightforward in concept, the Agency has found it challenging to establish a set of numbers to serve this purpose.

As conceived by the FACA Committee, and presented in Appendix A to today's proposal, the Bright Line is a set of constituent-specific, risk-based concentration levels. In agreeing on a Bright Line approach, the FACA Committee anticipated that a substantial proportion of contaminated media would fall below the Bright Line, and thus be eligible, at the Director's discretion, for flexible, site-specific requirements (non-Subtitle C) set by the overseeing Agency. At the same time, the FACA Committee agreed that the Bright Line should ensure that very highly contaminated media (traditionally considered "hot spots") be subject to uniform national protective standards (e.g., treatment). EPA believes that the Bright Line values presented in today's proposal are a reasonable attempt to balance both of these important objectives.

As originally conceived, the Bright Line was intended to represent in some manner the relative risk posed by contaminated media. Simply put, media contaminated above Bright Line concentrations should pose higher risks than media below the Bright Line under a given exposure scenario. Since the Bright Line is only an indicator of relative risk, the levels should not be interpreted as representing what is protective or "clean." The actual risk of any particular contaminated medium depends on the circumstances by which human or environmental receptors may be exposed to the medium. EPA wishes to emphasize that Bright Line concentrations are not cleanup levels. The Bright Line simply is a means of identifying which regulatory regime may be appropriate for the contaminated media at a cleanup site.

The Agency believes that the management of contaminated media would be conducted in a protective manner under either of the regulatory schemes that would be established by the rule. The underlying assumption is that managing contaminated media under the HWIR-media rule would eliminate significant exposures to humans or ecological receptors. This is because the overseeing agency's presence ensures that media will be managed in a way that directly addresses the risk posed by site-specific circumstances. Thus, protection of human health and the environment can be ensured by applying either the national standards for media that contain hazardous waste, or the site-specific standards specified by the overseeing agency for media, which the overseeing agency has determined do not contain hazardous waste, based on the proposed management standards

¹⁰ See memoranda discussed in section (V)(A)(4)(a) of today's preamble.

identified in the RMP. Thus, in establishing Bright Line concentrations, EPA finds it reasonable to consider the potential effect of different sets of Bright Line concentrations in terms of the proportional volumes of media that would fall above and below the Bright Line. EPA believes that unless a substantial amount of contaminated media are eligible for site-specific decision-making, the disincentives for clean-up will not be eliminated (therefore resulting in greater overall risk to human health and the environment).

Thus, EPA's goal was to develop Bright Line concentrations that would remove a significant amount of contaminated media from Subtitle C jurisdiction, while ensuring that "hot spots" would remain subject to mandatory national standards. In deciding how to determine such levels, the Agency considered several approaches that included selecting concentrations based solely on volume. This approach, however, was rejected because there was no way to account for the relative degree of risk posed by different constituents. In other words, because some constituents are more hazardous than others at the same concentration, a Bright Line based purely on volume would not account for this difference.

EPA, therefore, wanted to set Bright Line concentrations for different constituents at different levels in order to account for this variance in relative risk. In order to do this, EPA needed to consider a potential exposure scenario that would account for the difference in relative risk of these different constituents. Because risk occurs only when there is a chance of exposure, at least one set of exposure assumptions would be necessary to establish the Bright Line.

Since one of the goals of the Bright Line was to identify the most highly contaminated media, the FACA Committee recommended using 10^{-3} as a benchmark for setting the Bright Line. Therefore, the Bright Line values in Appendix A were based on a 10^{-3} risk level for carcinogenic constituents (using the assumptions described above), and a health index of 10 for non-carcinogens, (that is, $10 \times$ the concentration at which adverse health effects occur) according to certain exposure assumptions. This approach is consistent with the Superfund Principle Threats concept which uses 10^{-3} as a factor to identify the principle threats at Superfund sites.

Describing the Bright Line theory was relatively easy compared with determining Bright Line concentrations

for all media which would be subject to today's Part 269 proposal. Today's rule proposes to define soil, ground water, surface water, and sediments as media. However, the potential exposure assumptions that could be used to determine Bright Line concentrations vary for different types of media. Therefore, EPA established two sets of Bright Line values, one for soils, and one for ground water and surface water.

Today's proposed rule does not include Bright Line numbers for contaminated sediments. The amount of sediment that is classified as RCRA hazardous is very low. Thus, EPA proposes that site-specific contained-in decisions be made for hazardous contaminated sediments. The Agency requests comments on whether to develop a Bright Line specifically for contaminated sediments. The Agency also requests comments on whether it would be appropriate to use the Bright Line for soil for sediments.

Bright Line concentrations for soils. In setting the Bright Line for soils, EPA chose to use exposure scenarios and assumptions that were developed for the Superfund Soil Screening Levels (SSLs), because that effort used standard risk scenarios that have been widely used and accepted by the Agency (and by many States). The SSLs were developed for a purpose different from the Bright Line;¹¹ however, the exposure scenarios used in that effort are good indicators of relative risk for developing Bright Line values.

The SSLs are based on three human exposure scenarios: direct contact ingestion, inhalation, and drinking contaminated ground water. Each scenario is based on a specific set of assumptions for such things as body weight, frequency of exposure, daily intake rates, and other factors. The inhalation pathway also uses certain models to calculate wind dispersion and the uptake of airborne contaminants by human receptors.

Today's proposed Bright Line numbers for soils are based on only two of those human exposure scenarios—direct contact ingestion and inhalation. The Bright Line value for each constituent is based on whichever pathway yields the more conservative (i.e., lower) concentration. EPA recognizes that protection of ground water is one of RCRA's major goals and

that many of the Subtitle C design and operating standards were developed to protect ground water resources. Therefore, EPA considered the possibility of using the ground water exposure pathway in setting Bright Line concentrations for soils. However, the migration of contaminants from soils to ground water is fundamentally site-specific, and influenced by a number of site-specific factors such as depth to ground water; soil porosity; carbon content and other soil characteristics; amount of rainfall; solubility of the contaminants; and numerous other site- and constituent-specific conditions. The Agency has found less variability in fate and transport potential for inhalation and ingestion exposures in residential settings.

EPA is reluctant to use a greatly simplified ground water model that would not take any site-specific or constituent-specific factors into account. In order to address concerns posed to ground water on a more appropriate site-specific basis, EPA prefers to allow for consideration of ground water risks in making site-specific decisions regarding either the contained-in decision and/or the site-specific management requirements. Given the overseeing Agency's discretion to determine these standards on a site-specific basis, and given that EPA believes that site-specific decisions are most appropriate for ground water risk decisions, the Agency has proposed that the ground water exposure pathway should not be considered in setting the national Bright Line values for soils. Finally, EPA proposes two considerations to overlay the soil Bright Line numbers. EPA proposes to cap the Bright Line values at 10,000 ppm, equivalent to 1% of the volume of the contaminated media. EPA believes that it is reasonable to classify media as highly contaminated if 1% of the volume of media is contaminated with a particular constituent. Therefore capping the Bright Line at 10,000 ppm is consistent with the intention that the Bright Line distinguish between highly contaminated and less contaminated media. The second cap on the soil Bright Line values is the saturation limit (C_{sat}). EPA believes it is sound science to compare the concentrations developed through the inhalation and ingestion risk scenarios to the actual concentration that could physically saturate the soil. If the C_{sat} was lower than the concentrations from the inhalation or ingestion scenarios, EPA set the Bright Line concentration at the C_{sat}. For further details on specific assumptions and methodologies used to

¹¹ Superfund Soil Screening Levels (SSLs) were developed as a screening tool to determine when further investigation is necessary at Superfund sites. Because the SSLs are intended to be conservative, and trigger investigation whenever prudent, they are set at a 10^{-6} level for carcinogens. For more information on SSLs, call David Cooper (703) 603-8763.

determine the Bright Line values for soils, see Appendix A-1.

The Agency also considered several alternatives for establishing exposure assumptions for soil Bright Line numbers. These alternatives are discussed below. Estimates of the impacts of each alternative (in terms of volumes of media exempted) are all based on a 10^{-3} risk for carcinogens, and a health index of 10 for non-carcinogens (that is 10x the concentration at which adverse health effects occur).

Alternative #1—Bright Line for soils based on inhalation, ingestion, and migration to ground water. In addition to inhalation and ingestion pathways, this alternative would use a generic model to derive soil levels that, given certain fate and transport assumptions, would result in transfer of contaminants in the soils to ground water at or below drinking water standards (i.e., maximum concentration levels, or MCL's). EPA did not choose this alternative primarily because of the site-specific variability of calculating ground water exposure scenarios (as discussed above). In addition, this approach would result in Bright Line numbers that were considerably lower than those in the proposed option. The Agency estimated that under this alternative, approximately 50 percent of contaminated media would fall below the Bright Line, compared to 70 to 75 percent under the proposed option.

Alternative #2—Bright Line for soils based on inhalation and ingestion pathways, with concentrations calculated on a site-specific basis for the soil-to-ground water pathway. This option would yield Bright Line numbers that would approximate more closely ground water risks for each site. However, it would have the disadvantage of requiring considerable data gathering and analysis simply to calculate Bright Line concentrations, and these concentrations would obviously differ from site to site. This contradicts the idea of the Bright Line as "bright"—i.e., an easily referenced set of numbers that can be applied in a standard fashion. However, since Bright Line numbers would vary widely across the range of cleanup sites, volume estimates for this alternative are not possible to calculate.

Alternative #3—Bright Line numbers for soils based on a multipathway analysis. Under this alternative, numerous exposure pathways would be considered for each constituent, and Bright Line concentrations would be set for the most conservative pathway (i.e., the pathway that resulted in the lowest concentration level). In some respects

this approach would be consistent with the multipathway approach being used in the HWIR proposed rule for as-generated wastes (60 FR 66344-469, Dec. 21, 1995). However, the Bright Line is intended for a very different purpose than the "exit levels" being developed for that proposed rule. For instance, the exit levels in the HWIR-Waste rule (discussed in section (II)(B) of this preamble) generally assume that exited wastes will not be subject to any management requirements, whereas this proposal assumes that these wastes will be managed protectively under State/EPA oversight. In addition, the resulting Bright Line values would be much lower than those proposed today, thus much less media would be regulated "below the line."

Bright Line concentrations for ground water and surface water. Today's proposed rule also establishes Bright Line values specifically for contaminated ground water. (See Appendix A-2 and discussion below). As with contaminated soils, highly-concentrated, contaminated ground water would be subject to specific national management standards, while less-contaminated ground water could be managed according to site-specific requirements imposed by the State or EPA.

To set Bright Line concentrations for ground water and surface water (Appendix A-2), EPA used standard exposure assumptions for human ingestion of contaminated water. EPA believes that it is appropriate to use the same Bright Line values for surface water and ground water. And for the same reasons discussed above for soils, the Agency believes a multi-pathway approach, or "actual risk" approach is not necessary for setting Bright Line concentrations for ground water and surface water.

EPA has used the same philosophical approach for the ground water/surface water Bright Line as it has used for soils, by analyzing relative risk and relying on the oversight of authorized States or EPA to ensure that hazards are addressed on a site-specific basis. In addition, EPA used a 10,000 ppm cap for the ground water/surface water Bright Line, just as for the soil Bright Line. This is explained in the soil Bright Line section of the preamble. Finally, if the concentrations from the ingestion of contaminated water were below the detection limits for that constituent in water (the EQC), EPA set the Bright Line at the EQC. More details on the specific assumptions and methodologies used to determine these concentrations are included in Appendix A-2.

Issues common to both sets of Bright Line numbers. In developing today's proposed Bright Line concentrations, some stakeholders said that EPA would need to calculate a number of additional direct and indirect pathways to evaluate the relative risks of contaminated media completely. The stakeholders also said that the Agency would need to predict risks to ecological receptors (i.e., plants and animals) as well as human health risks. EPA, however, does not believe that evaluation of additional pathways is necessary. The pathways selected already provide a sufficient basis for distinguishing relatively lower-risk contaminated media from relatively higher-risk media. The evaluation of other pathways and receptors would be important and, in some cases, necessary if the Bright Line represented "safe" levels of contamination. As explained above, however, the Bright Line serves no such purpose. It merely identifies which of two regulatory schemes would apply to certain contaminated media. If site-specific factors demonstrate that a decision that media no longer contain hazardous wastes, would be inappropriate, then the overseeing agency has the discretion not to make such a determination.

Some stakeholders have voiced concerns about the land use assumptions that were used to set the Bright Line. The SSLs used residential land use assumptions; therefore, residential land use assumptions form the basis for the proposed Bright Line for soils. EPA recognizes that the residential land use assumptions that underlie the ingestion and inhalation exposure pathways used for today's Bright Line values for soil may be inappropriate for managing risks at many sites that would be subject to these HWIR-media regulations. However, since the purpose of using risk assessment to develop the Bright Line is to differentiate between the relative risks of constituents, and not to establish the risks posed at specific sites, either residential or industrial assumptions would have been equally appropriate. Since the Agency's residential risk assessment methodology is more developed than the industrial methodology, the Agency chose to use residential assumptions for developing the Bright Line. The Bright Line for ground water and surface water does not include assumptions about land use. (See discussion above).

Request for comment. EPA solicits comments on the approaches used to develop today's proposed Bright Lines. The Agency also requests comment on the alternatives described above, as well

as any other possible approaches to developing the Bright Line.

In addition, EPA requests comments on whether it is necessary to have a Bright Line at all. If there were no Bright Line, all media would be eligible for contained-in decisions by the overseeing agency on a site-specific basis. Alternatively, the "unitary approach," discussed in section VI of this preamble, would eliminate the Bright Line, and instead would exempt all cleanup wastes managed under a RMP from Subtitle C requirements.

Technical methodology. As discussed above, the technical methodologies used in calculating Bright Line concentrations for soil ingestion and inhalation are those that were used to develop "soil screening levels" for contaminated sites (59 FR 67706, December 30, 1994). In the proposed soil screening level guidance, values for the soil-to-ground water pathway would generally be calculated with data derived from site-specific factors and conditions, although generic values for this pathway would be presented in situations where site-specific data were unavailable. These technical methods and formulae are available for review in the docket for this rulemaking, and in the docket for the soil screening level proposal since they support both rules.

EPA requests comments on the methods, formulae, and technical underpinnings used for this rulemaking. Comments could include information on particular constituents that could change proposed Bright Line concentrations, information that may be used to determine Bright Line numbers for constituents that currently do not have Bright Line numbers. Commenters should keep in mind that the Agency's objective is to provide regulatory relief by encouraging contaminated media with a lower degree of risk to exit from Subtitle C regulation—provided that adequate safeguards exist to protect human health and the environment.

EPA has often found it necessary to propose sets of risk-based numbers to address contaminated media, for example; Subpart S action levels, (55 FR 30798, July 27, 1990), Superfund Soil Screening Levels (see below), and today's proposed rule. Since the Agency's understanding of risk assessment and the science surrounding risk based numbers is constantly developing, EPA has realized that almost as soon as risk-based numbers are published, they can become outdated. As a very current example, today EPA is proposing Bright Line concentrations based, in part, on the Superfund Soil Screening Levels (EPA/9355.4-14FS, EPA/540/R-94/101 PB95-

963529 (December 1994)). After today's proposed Bright Line concentrations were calculated, but before this proposal was published, some of the technical inputs used to calculate the Superfund Soil Screening levels were adjusted in response to public comments (e.g., volatilization factors, cancer slope factors, etc.). EPA did not have time to recalculate the Bright Line concentration before publishing them.

In response to this problem, EPA requests comment on alternatives to keep the Bright Line concentrations up-to-date with the most current Agency risk information and policies (e.g., adjustments to the Soil Screening levels,¹² changes in reference doses or cancer slope factors in the IRIS or HEAST databases). For purposes of comment on this proposal, EPA will update the Bright Line calculations and place them in the docket for this rule.

EPA believes it might be appropriate, instead of promulgating actual Bright Line concentrations in the final rule, to promulgate the methodology that could be used to develop constituent-specific concentrations, in Appendix A to this rule, and to provide guidance on appropriate sources for needed underlying risk-based information. EPA believes it might then be appropriate for States to update their lists of Bright Line concentrations on a regular basis, such as every six months, to remain current with developments in risk information. As an alternative, EPA believes it may be appropriate for States and/or EPA to calculate new Bright Line concentrations for each new RMP at the time it is proposed for public comment. In any case, the Bright Line concentrations being used under a RMP must be stated in the RMP, and available during public comment on the RMP. The Agency requests comment on these alternatives, and any other suggestions for keeping Bright Line concentrations up-to-date.

The Agency also recognizes the problems of trying to comply with a "moving target." A cleanup could be completed or underway using a certain set of Bright Line concentrations that could then change. EPA believes it might be appropriate to protect those past and on-going cleanup operations from the requirement to change course mid-way, or to revisit completed remediation waste management under a RMP which used outdated Bright Line concentrations. In the Superfund program, requirements that are revised

¹² The Soil Screening Guidance has addressed this problem by publishing the *methodology* as the guidance itself, and only providing the actual concentrations as examples in the appendix to the guidance.

or newly promulgated after the ROD is signed must be attained only when EPA determines that these requirements are ARARs and that they must be met to ensure that the remedy is protective (40 CFR 300.430(f)(1)(ii)(I)). Another alternative could be a shield such as is provided for RCRA permits in 40 CFR 270.4, which could specify that compliance with a RMP would equal compliance with RCRA. EPA requests comments on this protection issue, and how best to achieve it.

Relationship of the HWIR-media Bright Line to the HWIR-waste exit levels. As described earlier in this preamble (in section (IV)(C)) the objectives for the HWIR-waste exit levels and the HWIR-media Bright Line are different. The HWIR-waste exit levels are intended to identify levels of hazardous constituents that would pose no significant threat to human health or the environment regardless of how the waste was managed after it exited Subtitle C jurisdiction. The HWIR-media Bright Line levels are simply intended to distinguish between (1) contaminated media that are eligible to exit Subtitle C because it is likely that they can be managed safely under cleanup authorities outside of Subtitle C, and (2) media that contain so much contamination that Subtitle C management is warranted. Because of these different objectives, EPA developed the two proposals using different methodologies. For the soil Bright Line, HWIR-media used a calculation based on ingestion and inhalation of soil at 10^{-3} cancer risk, and a hazard index of 10 for non-carcinogens. For the non-wastewater HWIR-waste exit level (which is most readily comparable to the soil Bright Line), EPA used an analysis that evaluates exposures from multiple pathways to identify those pathways that may result in a 10^{-6} cancer risk and hazard index of 1 for non-carcinogens. EPA then selected the most limiting pathway, (most conservative), as the exit criteria. EPA believed that the HWIR-waste levels would be more conservative than the HWIR-media concentrations. However, upon a recent comparison of the two sets of numbers, some HWIR-waste exit levels are at higher concentrations (less conservative) than the HWIR-media Bright Line concentrations. In the comparison of those concentrations, EPA determined that for about 27% of the HWIR-media Bright Line concentrations of chemical constituents for soil, the HWIR-waste exit levels for non-wastewater were higher.

A similar result was found when EPA compared the HWIR-media

groundwater/surface water Bright Line concentrations to the HWIR-waste wastewater exit levels. In that case, EPA used direct ingestion of groundwater resulting in a cancer risk of 10^{-3} and hazard index of 10 for non-carcinogens to calculate the HWIR-media Bright Line. For the HWIR-waste wastewater exit level, EPA again analyzed multiple pathways to identify those that would result in a cancer risk of 10^{-6} and a hazard index of 1 for non-carcinogens and then selected the most limiting pathway as the exit criteria. For approximately 20% of the HWIR-media Bright Line concentrations for groundwater/surface water the HWIR-waste concentrations for wastewater were higher.

One of the practical concerns that arises from this difference in concentrations is this: if contaminated media is below the HWIR-waste exit levels, then that media is eligible for exit under that rulemaking just like any other hazardous waste. Therefore, if the HWIR-media rule specified that media at concentrations below the HWIR-waste exit levels were still "above the Bright Line" and not eligible for a contained-in determination, the two rules would be inconsistent. EPA recognizes that this inconsistency must be addressed before promulgation of these two final rules, and requests comments on how to resolve this issue. A preliminary description of the primary differences in the methodologies follows.

One of the most significant differences between the HWIR-waste and the HWIR-media methodologies is that the HWIR-waste methodology was designed to calculate an acceptable concentration at which as-generated waste and treatment residuals could exit the Subtitle C system. A part of that methodology assumed that exited wastes might be managed in such a way as to contaminate soils and groundwater, and calculated the potential risk to receptors from the contaminated soil or groundwater. Therefore, the HWIR-waste analysis models fate and transport between the original waste and the contaminated media, assuming some loss of concentration due to many factors, such as: partitioning of constituents to air, soil, and water; losses of contaminant mass through biodegradation; bioaccumulation through the food chain; and volatilization, hydrolysis, and dispersion of contaminants during transport. The HWIR-media methodology begins at the point where soils and groundwater are already contaminated. Therefore, the HWIR-media Bright Line did not incorporate fate and transport considerations to

calculate the Bright Line concentrations, but assumed the receptor was in direct contact with the contaminated media.

Specific comparison of soil Bright Line to non-wastewater exit levels. If contaminated soil were managed under the HWIR-waste proposal, the soil would be subject to the exit criteria for non-wastewaters. That is why EPA compared the soil Bright Line to the non-wastewaters exit level. For this analysis, the HWIR-media Bright Line for soil based on ingestion or inhalation was compared with the exit criterion for non-wastewater identified as the most limiting pathway (e.g., soil ingestion, fish ingestion) in the HWIR-waste proposal. Thus, the analysis was not necessarily a comparison of exit criteria and Bright Lines for similar exposure pathways.

The analysis indicated that for 27 of the HWIR-media Bright Line constituent concentrations for soil, the proposed Bright Line concentration was lower than the exit criterion for HWIR-wastes for non-wastewater. Of these constituents, six of the lower proposed Bright Line concentrations are lower because the HWIR-media number was intentionally "capped" at 10,000 parts per million. EPA decided to propose a 10,000 ppm cap, equivalent to 1% of the volume of the contaminated media, (as discussed above) because EPA believes that it is reasonable to classify media as highly contaminated if 1% of the volume of media is contaminated with a particular constituent. Therefore capping the Bright Line at 10,000 ppm is consistent with the intention that the Bright Line distinguish between highly contaminated and less contaminated media. The HWIR-waste proposal did not propose to cap the exit levels because it was not intended to differentiate wastes based on higher vs. lower concentration, but instead to differentiate based on risk factors.

For 12 of the 27 constituents, HWIR-media Bright Lines are established at soil saturation limits (C_{sat}) that are less than the corresponding HWIR-waste exit level. EPA believes it is sound science for a rule establishing soil concentrations to compare the concentrations developed through the inhalation and ingestion risk scenarios to the actual concentration that could physically saturate the soil. If the C_{sat} was lower than the concentrations from the inhalation or ingestion scenarios, EPA set the Bright Line concentration at the C_{sat}. The HWIR-waste proposal (since it is proposed for as generated wastes, not soils) did not propose to cap the exit levels at the soil saturation limit.

For the other nine of the 27 constituents, differences in the results can be attributed to several factors related to the underlying assumptions of the methodologies used to calculate the criteria.¹³ These include the fate and transport differences discussed above, and:

- Receptors. Although many of the exposure assumptions (e.g., exposure duration, exposure frequency, ingestion rate) are common to the analyses, there are still significant differences in the location of the receptors that will affect the exit criteria. The HWIR-media Bright Lines are based on an exposure scenario in which a resident lives directly on the contaminated media and ingests contaminated soil or inhales particulate and volatile emissions. The HWIR-waste exit levels consider several exposure scenarios; however, none are directly comparable to the HWIR-media exposure scenario. These exposure scenarios include an off-site resident, an adult off-site resident, a child off-site resident, an adult and child on-site 10 years after site closure, and an on-site worker.
- Sources. The HWIR-media Bright Lines for soil ingestion and inhalation exposure pathways are based solely on contaminated soils and assume that the soil is an infinite source. The HWIR-waste non-groundwater non-wastewater exposure pathways consider three sources: land application units, waste piles, and ash monofills. Waste piles and ash monofills are assumed to be infinite sources; however, the land application units are assumed to be finite sources. This assumption may result in higher (less conservative) exit criteria under HWIR-waste.

A comparison of the toxicity benchmarks indicates that the HWIR-media Bright Lines and the HWIR-waste exit levels generally start with the same toxicity benchmark (all but three chemicals for oral ingestion and all but four chemicals for inhalation use the same toxicity benchmarks). Thus, the apparent discrepancies in the criteria can be attributed to the significant differences in the fate and transport modeling of the chemicals in the HWIR-process waste analysis, the receptors evaluated, and assumptions related to the sources (as described above).

¹³ If the HWIR-media proposed Bright Line concentrations were updated to reflect the updated Soil Screening levels, as discussed above, two of these nine remaining constituents would have higher HWIR-media Bright Line concentrations than HWIR-waste exit levels.

Specific comparison of Groundwater/Surface Water Bright Line to wastewater exit levels. If contaminated groundwater were managed under the HWIR-waste proposal, the groundwater would be subject to the exit criteria for wastewaters. That is why EPA compared the groundwater/surface water Bright Line to the wastewaters exit level. For this analysis, the HWIR-media Bright Line for groundwater/surface water based on ingestion of groundwater was compared with two options for the exit criterion for wastewater for the HWIR-waste proposal, one based on toxicity benchmarks and one based on toxicity benchmarks and MCLs.

The analysis indicated that 38 constituents had higher proposed HWIR-waste exit criteria than proposed HWIR-media Bright Line concentrations.¹⁴ For one of these 38 constituent, only the MCL option for the HWIR-waste exit level was higher. For four of the 38 constituents, only the toxicity benchmark only option for the HWIR-waste exit level was higher. None of these 38 constituents were affected by the HWIR-media 10,000 ppm cap, and there is not a saturation limit cap on the HWIR-media groundwater/surface water Bright Line.

Similar to the comparison of the HWIR-media soil Bright Line to the HWIR-waste non-wastewater exit levels, the HWIR-media groundwater/surface water Bright Line and the HWIR-waste wastewater exit levels use different methodologies, and therefore produce different results. Again, a key difference between the two sets of concentrations is the use of fate and transport modeling. The HWIR-waste proposal assumes some loss through fate and transport, whereas the HWIR-media methodology assumes direct ingestion of the contaminated groundwater (more details on the two methodologies can be found in the dockets for the two proposed rules).

Request for comments. Because of the above comparisons, EPA has determined that for some constituents, because the HWIR-media methodology was *more* conservative than the HWIR-waste methodology, that conservatism outweighed the fact that the HWIR-media risk target (10^{-3} for limited pathways) was *less* conservative than the HWIR-waste risk target (10^{-6} for multiple pathways). Therefore some of the HWIR-waste exit levels, which were

intended to be more conservative overall than the HWIR-media Bright Line, are set at higher concentrations. As described above, EPA recognizes that these discrepancies must be resolved before promulgation of the two proposed rules. For further detail on the methodologies used to develop the HWIR-media Bright Line, Soil Screening Levels and the HWIR-waste exit levels, see the docket for the two proposed HWIR rules. EPA requests comments on how to resolve these issues.

B. Other Requirements Applicable to Management of Hazardous Contaminated Media

1. Applicability of Other Requirements—§ 269.10

The purpose of today's proposed rule would be to modify the identification, permitting, management, treatment, and disposal requirements for contaminated media. It is not intended to replace the entire scope of Subtitle C requirements as they relate to media. For that reason, many existing Subtitle C requirements would continue to apply to remedial actions conducted in accordance with this Part. Specifically, 40 CFR Parts 262-267 and 270 would continue to apply when complying with this Part, except as specifically replaced by the provisions of this Part. In addition, when treating media subject to LDRs according to the treatment standards in § 269.30, the following provisions of Part 268 would continue to apply' §§ 268.2-268.7 (definitions, dilution prohibition, surface impoundment treatment variance, case-by-case extensions, no migration petitions, and waste analysis and recordkeeping), § 268.44 (treatment variances), and § 268.50 (prohibition on storage). Again, the Agency does not intend to recreate all of the Subtitle C requirements, but in this case only replace certain requirements themselves as they relate to hazardous contaminated media.

2. Intentional Contamination of Media Prohibited—§ 269.11

EPA recognizes that promulgation of standards for hazardous contaminated media that are less onerous than the requirements for hazardous waste may create incentives for mixing waste with soil or other media to render the waste subject to these provisions. The Agency expressly proposes to prohibit this behavior (§ 269.11).

EPA recognizes, however, that sometimes it is necessary to have some mixing of contaminated media for technical purposes to facilitate cleanup. That mixing is not the prohibited mixing referred to here. This prohibition

specifically includes the intent to avoid regulation. If the intent of the mixing is to better comply with the regulations that would apply to the wastes prior to mixing, then it would not be prohibited under this clause. The Agency requests comments on whether further safeguards, in addition to this proposed provision and the civil and criminal enforcement authorities of RCRA, are needed to ensure that no attempts are made to mix wastes with media to take advantage of the reduced requirements of the proposed HWIR-media rule.

3. Interstate Movement of Contaminated Media—§ 269.12

EPA recognizes that media that would be exempted under today's rule, but that previously would have been managed as hazardous wastes, would be transported to and through States that were not the overseeing agency for the remedial action that generated those media. Therefore, the Agency designed the interstate movement requirements of proposed § 269.12 to ensure that receiving (consignment) States—or States through which media would travel—could approve the designation that the media is not hazardous before they accepted the media for transport or disposal.

The default in these requirements is that the media must be managed as Subtitle C waste in the receiving or transporting State if the receiving or transporting State has not been notified of the designation as non-hazardous, or if the receiving or transporting State does not agree with the determination. Receiving and transporting States would also have to be authorized for this Part in order to approve these decisions in their States. If a receiving or transporting State agrees to the redesignation, then the media may be managed as non-hazardous.

EPA requests comments on these interstate movement requirements, specifically on any implementation concerns with this approach, and any suggestions to ease implementation. Several people have expressed concern about notifying the States through which the media would be transported, but not ultimately disposed. The Agency believes that it may be appropriate to limit notification requirements to the States ultimately receiving the media. EPA also feels that it would be necessary to limit the designation of media as non-hazardous only to States that are authorized for this Part. The Agency believes that this would be necessary because the authority to make these contained-in decisions is an integral element for authorization for this Part. EPA believes

¹⁴ If the HWIR-media proposed Bright Line concentrations were updated to reflect current updated risk information, as discussed above, two of these 38 constituents would have higher HWIR-media Bright Line concentrations than HWIR-waste exit levels.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

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OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

T. L. Nebrich, Jr.
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Niagara Falls, New York 14301

Dear Mr. Nebrich:

Thank you for your letter of November 14, 1995 regarding clarification of the "mixture rule," the "contained-in" policy, LDR issues, and "point of generation" for U096, (a,a,Dimethylbenzylhydroperoxide). The U096 waste itself is subject to the LDR requirements in 40 CFR Subpart 268.42 and must be treated by the methods specified. When wastes exhibiting a RCRA characteristic (such as U096) are mixed with a solid waste, if the resulting mixture does not exhibit the characteristic (in this case of reactivity), then the waste is not required to be disposed in a Subtitle C landfill, but can be disposed in a Subtitle D landfill. However, the waste is still subject to treatment by the methods specified in 40 CFR Subpart 268.42 (see 40 CFR Subpart 261.3(a)(2)(iii)).

If U096 waste was spilled on soil, the EPA or authorized State Agency overseeing the cleanup could determine whether the soil did or did not contain hazardous waste, based on the "contained-in" policy. EPA's "contained-in" policy does not specify levels at which "contained-in" determinations must be made. Those decisions are left to the discretion of the EPA or State program that is making the "contained-in" determination. Therefore, the "contained-in" policy does not require that the U096 be analytically non-detectable in order to be considered non-hazardous, although the EPA or State program could require that (or alternative levels) based on their discretion.

Issues similar to those you raised regarding contaminated soil were discussed in a September 15, 1995 letter that I wrote to Peter C. Wright of the Monsanto Company. That letter is attached. Also, these issues will be discussed more fully in an upcoming EPA proposed rulemaking "Requirements for Management of Hazardous Contaminated Media" commonly referred to as the Hazardous Waste Identification Rule for Contaminated Media or HWIR-media. We plan to publish that proposal in March, and I will forward a copy to you as soon as it is available. We suggest you look to the proposal's preamble discussion for guidance regarding the situation you describe in your letter. Of course, it should be noted that the requirements that apply to contaminated media could change when EPA finalizes that rulemaking.

Thank you for your concern about protecting the environment. I apologize for the delay in responding to your letter that was caused by the

two government furloughs. Your staff may wish to contact Carolyn Hoskinson at (703) 308-8626, if you have any further questions.

Sincerely Yours,



for Michael Shapiro, Director
Office of Solid Waste

Enclosures.

cc:
Matt Hale, OSW/PSPD
Barbara Pace, OGC
RCRA Regional Branch Chiefs, Regions 1-10



WASTE TECHNOLOGY SERVICES INC.

Control to PSPD
cc 42
HWM

November 14, 1995

Mr. Michael Shipiro, Director
Office of Solid Waste
Environmental Protection Agency
401 M Street, S. W.
Washington, DC 20460

Dear Mr. Shipiro:

I am requesting a clarification of the "mixture rule" and "contained-in" policy in regards to U096 (a,a,Dimethylbenzylhydroperoxide) and LDR issues. This material is listed for reactive (R) and as such when mixed with another solid waste would not be a hazardous waste if it did not meet the reactivity requirement in 40CFR261.23. If this material was spilled on soil, the "contained-in" policy kicks in. I understand that with this scenario the identification as a hazardous waste is different than the above scenario (mixture). That is, the U096 would have to be analytically non-detect to be considered as non-hazardous.

If my assumptions are correct, and correct me if I'm wrong, what is the Land Disposal Restrictions (LDR) ramifications? Does this material have to be CMBST under both scenarios? At what point is the "point of generation" under both scenarios.

If you should have any questions, please do not hesitate to call.

Very truly yours,

WASTE TECHNOLOGY SERVICES, INC.

received
11/21/95
MAB

T. L. Nebrich, Jr.
Technical Director

TLN/kjl



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SEP 15 1995

Mr. Peter C. Wright
Monsanto Company
800 N. Lindbergh Boulevard
St. Louis, Missouri 63167

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

Dear Mr. Wright,

I am writing in response to your letter of January 3, 1995, in which you requested clarification of the RCRA "contained-in" policy. In your letter you asked several specific questions regarding this policy, and we offer our responses below. It should be understood that these responses reflect the Agency's current interpretation of the contained-in concept; in the Hazardous Waste Identification Rule for Contaminated Media (HWIR-media), currently under development, we will be looking closely at the contained-in policy and other issues associated with contaminated media and will be addressing those issues through the rulemaking process.

Question 1. Can a State determine whether or not soils which contained a listed hazardous waste, but were then treated to below health based concentrations, no longer contain the hazardous waste?

The contained-in policy is intended to clarify the application of RCRA hazardous waste regulations to environmental media. As stated in previous guidance on this policy, contaminated media are not considered solid wastes in the sense of being abandoned, recycled, or inherently waste-like as those terms are defined in RCRA regulations. However, environmental media that contain listed hazardous wastes must be managed as hazardous wastes because--and only as long as--they contain listed waste(s)¹. EPA Regions and authorized states may apply the contained-in policy to determine site-, media- and contaminant-specific levels, such that if the concentration of the hazardous constituents in the environmental media fall below these levels, the environmental media may be determined to no longer contain hazardous waste. Such "contained-in determinations" may be made before or after treatment of the contaminated environmental media and may include consideration of site-specific exposure pathways (e.g., potential for human exposure, soil permeability, depth to groundwater).

¹ June 19, 1989 letter from Jonathan Cannon, Acting Assistant Administrator of EPA's Office of Solid Waste and Emergency Response to Thomas Jorling, Commissioner of the New York Department of Environmental Conservation.



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Question 2. Are soils that have been treated and then determined not to contain hazardous wastes still subject to the Land Disposal Restrictions (LDRs) Universal Treatment Standards (UTS) prior to land disposal?

Yes. If contaminated environmental media are treated and then determined to no longer contain hazardous waste, the LDR treatment standards still must be complied with prior to land disposal. This means that the media would have to be treated to meet UTS or a treatability variance would have to be obtained². Individuals who believe that the UTS are not appropriate for media containing solid waste are encouraged to work with their State regulatory agency and the appropriate EPA Regional Office to obtain a site-specific treatability variance under 40 CFR §268.44(h). EPA's policy is that site specific treatability variances are presumed to be appropriate for contaminated media. See 55 FR 8760 (March 8, 1990) For more information on site specific treatability variances granted in the context of environmental cleanup, please refer to the Superfund LDR Guides Numbered 6A and 6B, entitled, *Obtaining a Soil and Debris Treatability Variance for Remedial Actions* and *Obtaining a Solid and Debris Treatability Variance for Removal Actions*, respectively. For your convenience, copies of these guidance documents are enclosed.

Of course, if no land disposal will occur, the LDR treatment standards do not apply. Additionally, contaminated environmental media determined not to contain any waste (i.e., it's just media), would not be subject to any RCRA Subtitle C requirement, including the LDRs.

Question 3. If groundwater that originally exhibited a hazardous characteristic is subsequently treated to below a State-determined contained-in level, would the ground water still be subject to the UTS requirements prior to land disposal?

Yes. Once the LDR treatment standards attach to characteristic wastes, even if the characteristic is eliminated, the media remain subject to any applicable LDR treatment standards that have not been met through removal of the

² Nothing in this letter is intended to affect the status of existing regulatory or statutory exclusions to the definition of solid or hazardous waste. Such provisions can prevent the duty to comply with LDRs from attaching in the first instance. See, e.g., RCRA § 1004(27) (exempting industrial point source discharges subject to Clean Water Act permits from the definition of solid waste). In addition, the Agency does not intend in this letter to expand the scope of activities that constitute land disposal and thus trigger LDR treatment requirements. For example, the Agency's positions that in situ treatment and movement of contaminated media within an area of contamination do not constitute land disposal remain unaffected. Similarly, this letter is not intended to affect any statutory or regulatory exclusions to the requirement to comply with LDRs (see e.g., RCRA § 3020(b)).

characteristic. As indicated in the Third Third decision, *Chemical Waste Management v. U.S. EPA*, 976 F.2d 2 (D.C. Cir. 1992), cert. denied, 1135 S.Ct 1961 (1993), elimination of the characteristic does not necessarily satisfy LDR requirements. If groundwater that exhibits a characteristic is treated prior to land disposal, it must be treated in accordance with applicable LDR treatment standards or pursuant to a treatability variance to meet LDR requirements. As discussed in our response to question 2, individuals who believe that the UTS are not appropriate to their contaminated media are encouraged to apply for a site specific treatability variance.

Of course, if no land disposal will occur, the LDR treatment standards do not apply. Additionally, ground water managed in accordance with one of the existing statutory or regulatory exclusions may not be subject to the LDR treatment standards even when land disposal will occur. For example, under RCRA § 3020(b), contaminated groundwater may be treated in accordance with a cleanup action and then reinjected into the aquifer from which it was withdrawn without meeting LDR treatment standards, provided the treatment substantially reduces the hazardous constituents prior to reinjection and the cleanup action will, upon completion, be sufficient to protect human health and the environment.

Question 4. May a State that is authorized only for the base RCRA program make contained-in determinations, or does the State need to be authorized for the LDRs as well?

In order to make contained-in determinations, a State must only be authorized for the part of the base program under which the waste of concern is identified as hazardous. For example, when determining whether or not a medium contains a particular characteristic waste, the State must be authorized for that characteristic. In the same manner, if the State wishes to determine whether or not a medium contains a particular listed waste, that State must be authorized for that particular waste listing. In regard to the two sites described in your letter, both Massachusetts and Texas are authorized for the base program under which the wastes you mentioned are identified as hazardous, and may, at their discretion, make the contained-in determinations you described.

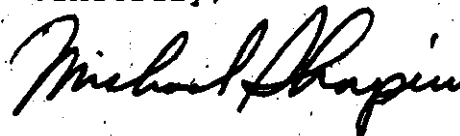
Question 5. Do contained-in determinations needed to be made under a RCRA permit, or can another mechanism be used?

Authorized states and EPA regions may use any format or mechanism to document contained-in determinations. These mechanisms could include official agency correspondence, orders, and RCRA permits.

We hope this will be of assistance to you in applying the

contained-in policy. If you have any further questions, please contact Elizabeth McManus, of my staff, at (703) 308-8657. In addition, please note that authorized states have their own regulations and policies which may be more stringent than federal regulations and policies. In authorized states, questions about application of the contained-in policy, including the interpretations put forth in this letter, should be referred to the appropriate state agency. In Texas, please contact Paul Lewis of the Texas Natural Resources Conservation Commission at (512) 239-2340; in Massachusetts, please contact John Carrigan of the Massachusetts Department of Environmental Protection at (617) 292-5584.

Sincerely,



Michael Shapiro
Director, Office of Solid Waste

Enclosure

cc: Matt Hale, OSW, PSPD
David Bussard, OSW, CAD
Jim Berlow, OSW, WMD
Larry Starfield, OGC
Dawn Messier, OGC
Barbara Pace, OGC
Bruce Diamond, OECA, OSRE
US EPA Regional RCRA Branch Chiefs, Regions I - X
John Carrigan, State of Massachusetts
Susan Ferguson, State of Texas

Monsanto

LAW DEPARTMENT

Monsanto Company
800 N. Lindbergh Boulevard
St. Louis, Missouri 63167
Phone: (314) 684-1000

PETER C. WRIGHT
ENVIRONMENTAL ATTORNEY
(314) 634-8609

January 3, 1995

1/10/95
C. Wright

Mr. Michael Shapiro
United States Environmental Protection Agency
Office of Solid Waste and Emergency Response
401 M Street, S.W.
Washington, D.C. 20460

Re: Clarification of the Contained In Rule

Dear Mr. Shapiro:

This letter addresses an urgent issue that arises with the December 19 effective date of the Phase II Land Disposal Restriction (LDR) rule. Your immediate attention and response is requested in order to avoid delay of planned remedial work that has been developed in concert with state authorities.

Monsanto Company has two plant sites that are planning to engage in remediation activities in the near term, which require confirmation of Monsanto's understanding of the operation of the contained in rule. More specifically, as will be described in detail below, these two sites have planned to implement remedial measures that will remove hazardous waste constituents from affected environmental media so that it is Monsanto's understanding (and that of the two RCRA authorized states) that the treated media will no longer "contain" a hazardous waste. The treated environmental media will likely contain traces of hazardous constituents after treatment, at concentrations below health based concentration limits established by the two states. We understand that once the media no longer contains the listed waste (as determined by the State agency) it no longer must be managed as a hazardous waste, i.e. subtitle C no longer applies and the media may be placed on the land without regard to the Land Disposal Restrictions Universal Treatment Standards (UTS). Do you concur? We also understand that a State authorized for the base program is empowered to make the contained-in determination without regard to the State's authorization status for the LDR program. Do you concur?

US EPA ARCHIVE DOCUMENT

33W-033
Doc. No.
1/10/95

Overview of the Sites and Remediation Projects

The first plant site is located in Everett, Massachusetts, just north of the City of Boston. This long time chemical manufacturing facility was closed in November, 1992. Currently, the Everett site has been proceeding under the authority of the Massachusetts Contingency Plan (MCP) with proposed remediation scheduled for completion in 1997. In order for the Everett site to proceed on its cleanup schedule, the Agency's interpretation of the contained in rule is important, particularly as the site is currently under a Purchase and Sale Agreement for development as a shopping center with construction scheduled to begin in 1997. This development is critical to the local community because the shopping center will be a major element of Everett's tax base and a significant source of employment in the city.

Due to historic manufacturing operations, areas of the plant site have been contaminated with bis 2-ethyl hexyl phthalate (BEHP), naphthalene and phthalic anhydride still bottoms, materials which carry the RCRA hazardous waste codes U028, U165 and K024, respectively. Concentrations as high as 10,000 mg/kg of BEHP, 30,000 mg/kg of naphthalene, and 60,000 mg/kg of phthalic acid have been detected in soil samples collected at the site. The remediation plan that has been under development would involve the separation of some discreet waste materials, treatment of some soil in place, and excavation and treatment of some soil from hotspot areas with subsequent reuse of the treated soil on-site as backfill. These treatment methods would significantly reduce the concentration of hazardous constituents remaining in the soils. The Everett Plant has held discussions with the Massachusetts Department of Environmental Protection (DEP's) Bureau of Waste Prevention regarding the impact of RCRA regulations on the planned remediation strategy and has assumed that once the soil was remediated to meet health-based concentrations levels established by Massachusetts (a RCRA authorized state), that the soil no longer would contain hazardous waste and could be beneficially reused as backfill on-site with no further RCRA restrictions. The planned remediation strategy would satisfy the Massachusetts Bureau of Waste Site Cleanup Program requirements to achieve a Permanent Solution, addressing potential risks to human health and the environment and eliminate the potential for constituent migration. Attached is a copy of a DEP policy memorandum dated March 4, 1994 and a letter issued on the same date describing DEP's understanding of how it will apply the contained in rule to a particular remediation project.

The other Monsanto site is the Chocolate Bayou plant, located near Alvin, Texas. This is a large diversified chemical manufacturing site that has a RCRA permit, which includes a corrective action component that is administered by the Texas Natural Resource Conservation Commission (TNRCC). Texas is authorized for RCRA corrective action. The particular remediation project at issue, a program to pump, treat and reinject groundwater that has been contaminated by benzene, phenol and acetone, is not being conducted under RCRA permit, but rather these

ctions are being undertaken proactively by Monsanto in consultation with the TNRCC. The plant applied for and has received a groundwater class V reinjection permit from TNRCC for this remedial project.

The groundwater at the point it is brought out of the ground is characteristically hazardous for benzene. The groundwater exhibited measured levels of benzene, phenol and acetone as high as 62 mg/l, 6 mg/l and 6 mg/l, respectively without any treatment. The air stripping treatment system to be installed has been designed to treat the groundwater so that the concentrations of benzene, phenol and acetone are no higher than 0.001 mg/l, 6 mg/l, and 2 mg/l respectively. This treatment of groundwater to these levels would mean that all three contaminants would be below the Texas Risk Reduction Rule Standard 2 Residential levels of 0.005 mg/l benzene, 21.9 mg/l phenol and 2.65 mg/l acetone. The phenol and the acetone would exceed the technology (incineration) based WTS wastewater standards of 0.039 mg/l for phenol and 0.28 mg/l for acetone. The phenol and the acetone are biodegradable organic chemicals and it is believed that the reinjection process will add oxygen to the affected groundwater, assisting in the biodegradation of the organic materials that are not removed by the treatment.

Neither site has considered applying for a Corrective Action Management Unit (CAMU). First, it was believed to be unnecessary to employ a CAMU because of the plan to treat contaminated media to meet health based levels. Second, the time, expense and effort on behalf of Monsanto and the state agencies to put in place the necessary RCRA permits and modifications makes the CAMU option not practical for a timely commencement of remediation activities.

History of the Contained In Rule

Monsanto's understanding has been that treating affected environmental media to meet health based concentration levels that have been applied on a site specific basis by the respective authorized states would free the treated media from further RCRA regulation, including the application of any land disposal restrictions. Monsanto's understanding is based on EPA discussions of the contained in rule. Monsanto's understanding of EPA's position on the "contained in rule" is that it was an interpretative rule long before it was "codified" in rulemakings in the 1990s. EPA has stated that this view of the contained in rule was supported by the 1989 Chemical Waste Management decision. Chemical Waste Management v. EPA, 869 F.2d 1526, 1538 fnr. 15 (D.C. Cir. 1989).

The contained in rule was first explained in a memorandum from Marcia Williams to Patrick Tobin dated November 13, 1986. That memorandum stated that "if groundwater is treated such that it no longer contains a hazardous waste, the groundwater would no longer be subject to regulation under Subtitle C of RCRA."

Subsequent memoranda and letters¹ expanded on the application of the contained in rule. These writings refined the concept that if contaminated environmental media was treated so that the levels of hazardous constituents that remained after treatment were below certain levels, which often have been set at health based levels, that EPA would consider that the affected media no longer "contained" a hazardous waste and so no longer was subject to regulation under RCRA Subtitle C. Monsanto is not certain that the contained in rule applies to a situation like what exists at the Chocolate Bayou plant where there are no listed, but only characteristic wastes involved. Yet Monsanto can see no reason why an exit level appropriate for media contaminated with listed waste would not also apply to media contaminated with a characteristic waste.

EPA also made it clear that an authorized RCRA state could determine what the contained in levels could be. EPA guidance to the states in making the contained in determinations has stressed the need to make the contained in determination on a site-specific basis, in accordance with the general State or Federal guidelines, or by means of a site specific risk assessment. It would appear that the Massachusetts regulations, 310 CMR 40.00 (the Massachusetts Contingency Plan) and the associated policy on the contained in rule and the TNRCC's Risk Reduction Rules provide precisely the kind of the decision making framework EPA requires that an authorized RCRA state use for making the contained in rule decision. It is only a requirement for a state to be authorized for the basic RCRA program to be able to make contained in determination, and it is not necessary for the state to be authorized for all or parts of the land disposal program.

The rulemakings "codifying" the contained in rule began with the reference in the Third Third rulemaking in which EPA "clarified" the treatment standards that would apply to soils that had been contaminated with listed waste. 53 Fed. Reg. 31138, 31142 (August 17, 1988). The contained in rule has been addressed in at least five other Federal Register notices.² The most involved discussion and greatest reliance on the contained in rule is found in the Contaminated Debris rulemaking. In the proposed rulemaking, EPA stated that debris which had been contaminated with hazardous waste would "no longer be a prohibited waste or a hazardous waste if it achieves levels which debris no longer 'contains' hazardous waste." 57 Fed. Reg. at 982. EPA further explained that the levels would be that at which the potential threat to human health and the environment had been

¹See e.g., Sylvia K. Lowrance to Jeff Zalkinson, January 24, 1989; Jonathan Cannon to Thomas Jorling, June 19, 1989 (authorized states can make determination on what the appropriate health based levels are at which media no longer "contains" a hazardous waste); Sylvia K. Lowrance to John Ely, March 20, 1991 (recommended that the state use a risk assessment approach to making contained in determinations) (The Massachusetts letter cites additional letters).

²See e.g., 56 Fed. Reg. 24456 (May 11, 1991); 57 Fed. Reg. 958, 961 (January 9, 1992); 57 Fed. Reg. 37184 (August 18, 1992); 58 Fed. Reg. 48082, 48096 (September 14, 1993) and 59 Fed. Reg. 47882, 47886 (September 19, 1994).

minimized. Id. at 985. In the final rulemaking, EPA explained that treated contaminated debris would be considered to no longer "contain" a hazardous waste, if the debris were treated so as to achieve health based concentrations based on considerations of site hydrology and exposure pathways. EPA summarized the regulatory effect of providing treatment to these levels by stating that "[d]ebris found not to contain hazardous waste (and not exhibiting a hazardous waste characteristic) would not be subject to further Subtitle C regulation, and so could be land disposed without further treatment." 57 Fed. Reg. at 37226 (emphasis added).

The contained in rule has also been discussed in context of the rulemaking proposing land disposal restriction standards for soil and in the final UTS rulemaking. EPA stated "the primary function of a contained in determination has been to determine specific constituent concentrations at which the media at a specific site no longer 'contained' hazardous waste and thus would no longer be subject to the management standards for hazardous waste." 58 Fed. Reg. at 48127. EPA's discussion of the contained in rule and its relationship to the concept of minimized threat levels in these rulemakings is unclear to us. Yet it appears to us that a contained in determination based on a site specific determination satisfies any requirement to achieve minimized threat levels. If this is not EPA's position, then EPA has made a major change in policy for which no notice has been given, for which no rationale has been provided and which may mean that the work on the HWIR will be a complete waste of time. More to the point, if this interpretation about the affect of the contained in rule has changed it may bring to a halt the two remedial projects referenced above and undoubtedly countless other projects.

In order to avoid delay and unnecessary additional expense in connection with approving bids from remediation contractors, we request a prompt response. Monsanto would also like an opportunity to meet with the Agency at the Agency's convenience during January to address the matters raised in this letter.

We look forward to the Agency's urgent consideration and response on this important matter.

Very truly yours,



Peter C. Wright

**cc: Barbara Pace, Esquire, EPA Office of General Counsel
Steven Silverman, Esquire, EPA
Richard Kinch, EPA**

**Mr. Thomas Powers, Acting Commissioner
Mr. John Carrigan
Mr. Brian Moran
Commonwealth of Massachusetts
Department of Environmental Protection
One Winter Street
Boston, Massachusetts 02108**

**Mr. Richard Chaplin
Commonwealth of Massachusetts
Department of Environmental Protection
10 Commerce Way
Woburn, Massachusetts 01801**

**Mr. Douglas Crist
Mr. Tom Jecha
Ms. Wendy Ruzacky
Texas Natural Resource Conservation Commission
P.O. Box 13087
Austin, Texas 78711-3087**

Lowell Martin, Esquire, RCRA Corrective Action Project



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

FEB 17 1995

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

MEMORANDUM

SUBJECT: P and U Listed Wastes and the Contained-in Policy

FROM: Devereaux Barnes, Director
Permits and State Programs Division, OSW

TO: Norm Niedergang, Director
Office of RCRA, Region V

Recently your staff contacted us in regard to the Agency's current RCRA contained-in policy as it applies to environmental media that contain P and U listed hazardous wastes. Since this question has been posed several times by other Regions, we would like to take this opportunity to articulate the Agency's position on this matter.

The RCRA contained-in policy applies to P and U listed wastes in the same manner as for other listed wastes. Although §261.33(d) specifies that contaminated soil and water generated from the cleanup of releases of P and U listed wastes must be managed as hazardous waste, such soil or water would not be considered "contaminated" in this particular context if the implementing agency determined that the media did not contain such a listed waste.

As you may know, the Office of Solid Waste is currently developing a new rulemaking--the HWIR Contaminated Media Rule--that will likely codify the contained-in concept in some detail. That rulemaking should hopefully resolve a number of the questions that are often asked regarding the current contained-in policy. Several of your staff are members of the HWIR-Media workgroup, and we will keep them apprised of any further developments regarding this concept.

If you have any questions, please contact Dave Fagan or Carolyn Hoskinson of my staff, at (703) 308-8620 and (703) 308-8626 respectively.

cc: J. Boyle
K. Pierard
B. Pace
T. Kaneen





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 22 1994

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Mr. T. L. Nebrich, Jr.
Technical Director
Waste Technology Services, Inc.
640 Park Place
Niagara Falls, New York 14301

Dear Mr. Nebrich:

I am pleased to respond to your letter of January 10, 1994, in which you requested clarification of the Agency's "contained-in" policy. The specific question that you raise regards soil contaminated with a listed waste that is listed only because of its ignitability. You question whether the contaminated soil is still a hazardous waste when it is not ignitable. The example that you cite involves soil contaminated with U239. You also raise the same question for soils contaminated with other listed wastes (such as F003) that are listed solely for ignitability.

As you correctly state in your letter, under the "contained-in policy", the authorized state or EPA has the discretion to determine contaminant-specific health-based levels, such that if the concentrations of the hazardous waste constituents were below those levels, the media would no longer be considered to contain the waste. The health-based levels used in making contained-in determinations are made on a site-specific basis. EPA has codified the contained-in policy for contaminated debris (see 57 FR 37225, August 18, 1992).

In cases where the waste is listed only for ignitability, and the contaminated soil is not ignitable and does not exhibit any other characteristics, the contaminated soil may contain hazardous constituents and thereby contain the listed waste. The authorized state or EPA may establish health-based levels for any hazardous constituents present in the contaminated soil below which the contaminated soil would no longer contain the listed waste. For example, for a soil contaminated with F003 listed waste, the authorized state or EPA might establish contained-in determination levels for individual solvents as well for any metals that might be present. This interpretation is consistent with the delisting process for wastes that are listed solely because they exhibit a characteristic. To make a delisting determination, the Administrator may examine additional hazardous constituents other than those for which the waste was listed (260.22(c)(2)).

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 15 1992

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

Mr. William L. Warren
Cohen, Shapiro, Polisher, Sheikman and Cohen
1009 Lenox Drive, Building Four
Lawrenceville, NJ 08648

Dear Mr. Warren:

I am pleased to respond to your letter of August 26, 1992, in which you requested clarification of several issues relating to the regulatory status of soils contaminated from releases of commercial chemical products.

The example outlined in your letter dealt specifically with leakage of carbon tetrachloride from a tank. Since the carbon tetrachloride has been "discarded" in this case, it would be identified as U-211 listed hazardous waste. The key question posed in your letter is whether the resulting contaminated soil is hazardous waste, and under what circumstances it would be subject to hazardous waste management requirements.

Under EPA's regulatory definition of hazardous waste in §261.3(c)(1), soils that contain hazardous wastes must be managed as if they were hazardous wastes until or unless they no longer contain the listed waste, exhibit a characteristic, or are delisted (see 57 Fed. Reg. 37225, Aug. 18, 1992). Under the "contained-in policy" the authorized State or EPA has the discretion to determine contaminant-specific health-based levels, such that if the concentrations of the hazardous waste constituents were below those levels the media would no longer be considered to contain the waste. This applies to "U" listed wastes, and other listed wastes. The health-based levels used in making contained-in determinations are established on a site-specific basis, in accordance with general State or Federal guidelines, or by means of a site specific risk assessment. This discretion is available to the State Administrator in an authorized State, or otherwise is vested in the EPA Regional Administrator.

In the example outlined in your letter, you state that the contaminant levels are below the State's remedial requirements. As such, it may be that the State would determine that the soils do not contain hazardous wastes. If such is the case, and



I hope that this has helped to clarify the issues that you have raised. If you have any further questions, please contact Hugh Davis at (703) 306-8633.

Sincerely,

Elizabeth Alotsworth

for Michael Shapiro

Director, Office of Solid Waste

Federal Register

530-Z-93-010

Tuesday
August 18, 1992

Part II

Environmental Protection Agency

40 CFR Part 148 et al.

Land Disposal Restrictions for Newly
Listed Wastes and Hazardous Debris;
Rule



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ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 148, 260, 261, 262, 264, 265, 268, 270 and 271

[FRL-4132-4]

RIN 2050-AD36

Land Disposal Restrictions for Newly Listed Wastes and Hazardous Debris

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: The Environmental Protection Agency (EPA) is finalizing treatment standards under the land disposal restrictions (LDR) program for certain hazardous wastes listed after November 8, 1984, pursuant to a proposed consent decree filed with the District Court that established a promulgation date of June 1992 (*EDF v. Reilly*, Civ. No. 89-0598, D.D.C.). EPA is also finalizing revised treatment standards for debris contaminated with listed hazardous waste or debris that exhibits certain hazardous waste characteristics (hereinafter referred to as hazardous debris), and several revisions to previously promulgated standards and requirements. These actions are being taken as part of the RCRA Reform Initiative, and are expected to facilitate implementation of the LDR program.

EFFECTIVE DATES: This final rule is effective on June 30, 1992, except for §§ 148.17(a), 260.10, 261.3(c)(2)(ii)(C), 268.2, 268.5, 268.7, 268.9, 268.36(a), 268.40, 268.41, 268.42, 268.43, 268.45, 268.46, 268.50, 270.14, 270.42, 270.72, and 271.1, which are effective November 16, 1992; and §§ 262.34, 264.110, 264.111, 264.112, 264.140, 264.142, part 264 subpart DD, 265.110, 265.111, 265.112, 265.140, 265.142, 265.221, and part 265 subpart DD, which are effective February 18, 1993.

ADDRESSES: The official record for this rulemaking is identified as Docket Number F-92-CD2F-FFFF, and is located in the EPA RCRA Docket, room 2427, 401 M Street SW., Washington, DC 20460. The docket is open from 9 a.m. to 4 p.m., Monday through Friday, except on Federal holidays. The public must make an appointment to review docket materials by calling (202) 260-9327. A maximum of 100 pages from the docket may be copied at no cost. Additional copies cost \$.15 per page.

FOR FURTHER INFORMATION CONTACT: For general information, contact the RCRA Hotline at (800) 424-9346 (toll free) or (703) 920-8810 locally. For information on treatment standards for newly listed wastes or hazardous

debris, contact the Waste Treatment Branch, Office of Solid Waste (OS-322W), U.S. Environmental Protection Agency, 401 M St., SW., Washington, DC 20460, (703) 308-8434. For information on capacity determinations or national capacity variances, contact the Capacity Programs Branch, Office of Solid Waste (OS-321W), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, (703) 308-8440.

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I. Background*A. Summary of the Hazardous and Solid Waste Amendments of 1984*

The Hazardous and Solid Waste Amendments (HSWA) to the Resource Conservation and Recovery Act (RCRA), enacted on November 8, 1984, allow hazardous wastes to be land disposed only if they satisfy either of two conditions: (1) They can either be treated, or otherwise satisfy, the requirement of section 3004(m), which provision requires EPA to set levels or methods of treatment, if any, which substantially diminish the toxicity of the waste or substantially reduce the likelihood of migration of hazardous constituents from the waste so that short-term and long-term threats to human health and the environment are minimized; or (2) they can be land disposed in units satisfying the so-called no-migration standard in sections 3004 (d)(1), (e)(1), and (g)(5). Land disposal includes any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, or underground mine or cave. RCRA section 3004(k).

EPA was required to promulgate land disposal prohibitions and treatment standards by May 8, 1990 for all wastes that were either listed or identified as hazardous at the time of the 1984

debris even if the equipment was used to treat wastes or wastewaters. The commenters are correct. A discarded pump or filter used to treat a waste is debris, but the waste pumped or filtered is not debris. Although some filtered or pumped waste will contaminate the pump or filter (indeed, that is the basis for subjecting the filter or pump to the treatment standards), the contaminated pump or filter will virtually always be comprised primarily of debris rather than waste and so would be classified as debris.

f. *Intact Containers Are Not Debris.* A number of commenters requested comment on the relationship between the proposed treatment standards for debris and the so-called empty container rule in § 261.7. That rule states in essence that with respect to containers holding hazardous waste, what is regulated is the hazardous waste in the container and not the container itself. Thus, empty containers are not regulated, and the hazardous wastes in nonempty containers are. An empty container is one from which all hazardous wastes have been removed using practices commonly utilized for waste removal, and in which not more than 2.5 centimeters of waste remains. (Slightly different tests apply to containers holding acutely hazardous wastes.)

Since containers are potentially a form of debris, there is a question whether either empty or nonempty containers are subject to the treatment standards for debris notwithstanding § 261.7. EPA is indicating in this rule that the debris treatment standards do not override the empty container rule, so that rule remains in effect. EPA is taking this step largely because it did not propose the issue for comment, and any fundamental changes to the empty container rule merit fuller public participation than afforded here. In addition, EPA has not fully studied the implications of making changes in the empty container rule to accommodate regulations under the land disposal prohibitions program.

Today's final rule thus indicates that intact containers are never considered to be debris, and thus would never be subject to treatment standards for debris. Intact containers are either empty or nonempty. If empty they are not subject to regulation, as provided by § 261.7(a)(1). If nonempty, the hazardous waste within the container is subject to the land disposal prohibitions (as well as the rest of subtitle C regulations). EPA also does not consider intact tanks to be debris, so that any hazardous wastes in tanks would be subject to the

standards for those wastes, not (potentially) to treatment standards for debris.

It should be noted, however, that EPA is reading the empty container rule in § 261.7 to apply to intact containers. The Agency is doing so because the rule was clearly intended for devices that function as containers, not for crumpled drums that are not easily emptied by normal means. See § 261.7(b)(1)(i). Nonfunctional containers are more naturally classifiable as debris and the treatment standards adopted today are appropriate for such damaged containers being disposed.

By "intact container", the Agency means a container that can still function as a container. The Agency believes that a container that is unbroken and still retains at least 75% of its original holding capacity (i.e., has not been crushed more than 25%) is still intact. The Agency selected the 75% criterion because: (1) It is within a reasonable range of 50% to 90%; (2) selecting an original volume criterion on the high end of the range (e.g., 90%) would result in containers containing large quantities of waste being considered debris even though the containers could be readily separated from debris; and (3) selecting an original volume criterion on the low end of the range (e.g., 50%) would subject the waste in containers that have been severely crushed to the treatment standards for the waste. This would require removal of the waste from the container for treatment which may be impracticable for severely crushed containers.

Finally, it should be noted that by observing the empty container rule, EPA is creating a limited exception to the nonsegregation principle discussed above. In situations where intact containers are mixed with true debris (i.e., materials classified as debris under today's rule), the intact containers thus would have to be removed and managed separately.

The following example indicates how these principles would apply. At a remediation site, ruptured drums are discovered still containing some prohibited hazardous waste. Mixed in with these drums are other drums some of which are not significantly damaged or crumpled and all still contain prohibited hazardous wastes. All of these drums are going to be disposed of off site.

Under today's rule, the ruptured drums are debris (broken or ruptured containers are always debris if contaminated with prohibited waste) and cannot be land disposed until they are treated by one of the debris

treatment methods. If hazardous waste is removed from the drum during treatment, the waste, like all treatment residues, is subject to the treatment standards for the prohibited waste. With respect to the unruptured drums, those that are intact (i.e., those that retain at least 75% of their original volume) are nonempty containers under § 261.7. The waste in these drums is subject to the treatment standards for the prohibited waste. Those that are not intact (i.e., those that retain less than 75% of their original volume) are debris.

2. Definition of Hazardous Debris

a. *Which Debris is Hazardous, and of this Debris, Which is Prohibited?* This rule applies only to debris that is subject to subtitle C regulation when it is generated. As EPA proposed, this means: (1) Debris that contains listed hazardous wastes (either on the debris surface, or in its interstices, such as pore structure); or (2) debris that exhibits a characteristic of hazardous. See 57 FR 983. To be prohibited, and hence subject to the treatment standards adopted today, the debris would have to be contaminated with listed wastes that are also prohibited, or exhibit a prohibited characteristic. Thus, only debris that is contaminated with a listed waste for which EPA has established a treatment standard, and debris exhibiting the characteristics of ignitability, corrosivity, reactivity, or EP toxicity (plus exhibiting the TC characteristic, since the debris must still be a hazardous waste) are subject to the treatment standards adopted today. (Most of these debris wastes, of course, are already prohibited by virtue of previous rulemakings; only debris contaminated exclusively with the newly listed wastes for which EPA is adopting treatment standards today would be newly prohibited under today's rule.)

b. *Codification of Contained in Principle for Debris.* In adopting the definition that debris containing listed hazardous waste is regulated under subtitle C, EPA is codifying the "contained in" principle, which has heretofore served as an interpretive gloss on the existing mixture and derived from rules. See 57 FR 983, *CMA v. EPA*, 869 F. 2d 1526 (D.C. Cir. 1989). As explained at proposal, *id.* at 986, the contained in concept will apply to both media and nonmedia debris (an approach with unanimous support in the public comments).

Furthermore, EPA is also codifying the corollary part of the contained in principle: That debris which no longer "contains" listed hazardous waste

would no longer be subject to subtitle C regulation, provided that it does not exhibit any hazardous waste characteristic. This involves a case-by-case determination by EPA, made upon request, that debris does not contain hazardous waste at significant levels, taking into consideration such factors as site hydrogeology and potential exposure pathways, but excluding management practices.²¹ Debris found not to contain hazardous waste (and not exhibiting a hazardous waste characteristic) would not be subject to further subtitle C regulation, and so could be land disposed without further treatment. In addition, these levels could be achieved by any form of treatment other than impermissible dilution, and thus need not result from application of the debris treatment methods adopted today. *Id.* at 983-84.

3. Relation of Today's Rule to the Hazardous Waste Identification Rule

On May 20, 1992, EPA proposed comprehensive revisions to the regulatory definition of hazardous waste, asking for comment on a series of options for redefining what a hazardous waste is. See 57 FR 21450. These rules could affect which debris is considered to be hazardous when it is generated (both through modifications to the hazardous waste definitions and the contained in principle), and so could affect both the definition of hazardous debris used in this rule, and possibly the extent such debris must be treated by prescribed methods of treatment. EPA has attempted to note in each of the sections below the potential overlap of this proposed rule on the rules adopted today.

Although the Hazardous Waste Identification Rule (HWIR) when promulgated will affect the definition of hazardous debris subject to today's treatment standards, the Agency believes that it is nonetheless appropriate to make the treatment standards effective immediately upon promulgation. The Agency does not believe that today's rule will place an unreasonable burden on generators of hazardous debris that may subsequently be determined by HWIR not to be hazardous because the Agency has provided a national, case-by-case capacity variance for hazardous debris that defers the effective date of today's treatment standards until May 8, 1993. By that time, the Agency believes that the final HWIR will be promulgated and

the treatment of debris that HWIR determines is no longer hazardous will be precluded.

C. Treatment Standards for Hazardous Debris

1. Overview

In this section, we discuss: (1) The treatment technologies proposed as BDAT; (2) the contaminants subject to treatment; (3) the debris treatment standards; (4) alternative LDR standard; (5) performance standards that must be met to ensure effective treatment and to comply with the BDAT standards; (6) contaminant restrictions for certain treatment methods; (7) use of treatment trains for multiple contaminants and debris types; (8) treatment of characteristic debris; (9) standards for debris that is inherently toxic (i.e., it fails the TC and EP for metal contamination because it is fabricated from a toxic metal); (10) relationship of TSCA PCB rules to today's rule; (11) relationship of existing agency standards for asbestos to today's rule; (12) special requirements for radioactive debris; and (13) implementation of treatment standards.

2. BDAT Debris Treatment Technologies

a. *Identification of BDAT Treatment Technologies.* The Agency considered a treatment technology to be "available" if the technology itself or the services of the technology are able to be purchased, and the technology substantially diminishes the toxicity of the waste or reduces the likelihood of migration of the waste's hazardous constituents. The technologies that the Agency has identified as best demonstrated available technologies (BDAT) have been used to treat hazardous debris at Superfund sites, to remove radioactive metals from debris, to treat debris-like material contaminated with compounds similar to one or more of the compounds in the debris contaminant categories or, based on engineering judgment, are applicable to debris.

The Agency considered a technology to be demonstrated for a particular waste if the technology currently is in commercial operation for treatment of the waste or constituent of interest or similar wastes or constituents of interest, including wastes not regulated under RCRA, such as PCBs and radioactive waste. The Agency identified demonstrated technologies either through a review of the literature in which current waste treatment practices were discussed, or through information provided by specific facilities currently treating the waste or similar wastes. EPA also considered as

demonstrated technologies those used to separate or otherwise process chemicals and other materials which are similar to the waste or constituent of interest.

The Agency also reviewed the properties of debris which may directly affect the efficiency of treatment technologies. Debris characteristics which may affect the performance or effectiveness of treatment technologies to clean various types of debris include:

- Destructibility;
- Hardness and brittleness;
- Moisture content;
- Permeability;
- Size, homogeneity, and location (in situ versus ex situ);
- Surface texture; and
- Total organic carbon (TOC).

Under today's rule, the Agency has identified the following 17 treatment technologies as BDAT for hazardous debris:

- Extraction Technologies:
 - Physical Extraction
 - Abrasive blasting
 - Scarification, grinding, and planing
 - Spalling
 - Vibratory finishing
 - High pressure steam and water sprays
 - Chemical Extraction
 - Water washing and spraying
 - Liquid phase solvent extraction
 - Vapor phase solvent extraction
 - Thermal Extraction
 - High temperature metals recovery
 - Thermal desorption
- Destruction Technologies
 - Biodegradation
 - Chemical oxidation
 - Chemical reduction
 - Thermal destruction
 - Immobilization Technologies
 - Macroencapsulation
 - Microencapsulation
 - Sealing

Summary descriptions of these technologies are presented in Appendix I of today's preamble and treatment performance standards for each technology are prescribed in Table I, § 268.45. Further, detailed information on the various treatment technologies is presented in the Hazardous Debris Final Rule Technical Support Document.

b. *Changes in Identification of BDAT Technologies From Proposal.* Based on public comment and the Agency's further evaluation, the Agency has determined that two debris treatment technologies proposed as BDAT—electropolishing and ultraviolet radiation—are not BDAT, and an additional technology not proposed as BDAT—high temperature metal recovery—is, in fact, BDAT for

²¹ We note that consideration of management practices for exclusion from subtitle C is being evaluated through the proposed Hazardous Waste Identification Rule discussed below in the text.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 26 1991

OFFICE OF
SOLID WASTE AND EMERGENCY RESPONSE

John E. Ely
Enforcement Director
Virginia Department of Waste Management
101 North 14th Street
Richmond, Virginia 23219

Dear Mr. Ely:

At the request of Carlyle C. Ring, Vice President and General Counsel of Atlantic Research Corporation, I am sending this letter to summarize the Agency's current position on the "contained-in" interpretative policy. It is my understanding, based upon Mr. Ring's letter, that there was some question as to whether the "contained-in" interpretative policy applies to all environmental media or only to ground water. Mr. Ring's letter also suggested that a letter from my Office would help resolve this matter. I hope this letter will answer this question and further clarify the policy. I have also enclosed, for your information, a memorandum from Jonathan Cannon to Thomas Jorling dated June 19, 1989. I hope that you will find these helpful.

The "contained-in" interpretation addresses environmental media (i.e., ground water, soil, and sediment) contaminated with RCRA listed hazardous waste. Our federal regulations at 40 CFR Part 261.3 identify hazardous wastes. Among other things, these regulations state that a solid waste mixed with a hazardous waste is a hazardous waste. However, these regulations generally do not specifically address environmental media, which are not solid wastes, mixed with listed hazardous waste. The Agency's position continues to be that mixtures of environmental media and listed hazardous waste (i.e., contaminated ground water, contaminated soil, and contaminated sediments) must be managed as if they were hazardous waste. This position is known as the "contained-in" policy. EPA's application of the "contained-in" policy to contaminated media was upheld by the D.C. Circuit Court of Appeals in Chemical Waste Management, Inc. v. U.S. EPA, 869 F.2d 1526 (D.C. Cir. 1989).

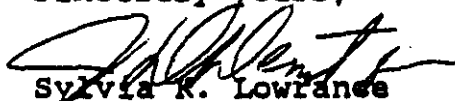
Consistent with this approach, the Agency further interprets the regulations to mean that environmental media contaminated with listed hazardous waste must be managed as if they were hazardous waste until the media no longer contain the listed hazardous waste (i.e., until decontaminated), or are delisted. To date, the Agency has not issued any definitive guidance as to

when, or at what levels, environmental media contaminated with listed hazardous waste no longer contain that hazardous waste. Until such guidance is issued, the Regions or authorized States may determine these levels on a case-specific basis. However, as you know, States that are authorized to implement the RCRA hazardous waste program, as Virginia is, are not bound by EPA's interpretation of the Federal regulations. Although they usually follow Federal interpretations, authorized States may interpret their own regulations more strictly than EPA interprets the Federal regulations.

Related to making a determination as to when contaminated media no longer contains listed hazardous waste, we suggest that a risk assessment approach be used that addresses the public health and environmental impacts of hazardous constituents remaining in the treated soils. And as stated above, the authorized State could apply more stringent standards or criteria for contaminated environmental media than those recommended by the Federal EPA if the authorized state determined it to be appropriate. [Note: However, this approach does not apply to residuals from the treatment of listed hazardous waste or mixtures of solid waste with listed hazardous waste under our current regulations, which must be delisted.]

I hope that this letter will be helpful to you in establishing and implementing Virginia's hazardous waste policies on related issues. Should you have any questions concerning EPA's "contained-in" interpretative policy, please contact Steve Cochran, Acting Chief of the Waste Identification Branch, at (202) 382-4770.

Sincerely yours,


Sylvia K. Lowrance
Director
Office of Solid Waste

cc: C. Ring
D. Freedman

Atlantic Research Corporation

Federal Express

5380 Cherokee Avenue
Alexandria, Virginia 22312
(703) 642-4280

Hyle C. Ring, Jr.

Vice President and General Counsel

February 21, 1991

Mr. David Bussard
Characterization & Assessment Division
Solid Waste and Emergency Response
Environmental Protection Agency
401 M Street S.W.
Room SE240E
Washington, D.C. 20460

Re: Contained In Rule

Dear Mr. Bussard:

It is our understanding that the enclosed letter of Assistant Administrator Jonathan Z. Cannon of June 19, 1989 states the policy and position of the EPA that the "contained in" rule applies to ground water, soil and sediment.

We would hereby request that a letter be sent to the Virginia Department of Waste Management stating that the "contained in" rule of the enclosed Jorling letter applies to all environmental media. The letter should be sent to:

John E. Ely, Enforcement Director
Virginia Department of Waste Management
101 North 14th Street
Richmond, Virginia 23219.

It is our understanding that VDWM will accept such a letter indicating the EPA Headquarters policy as applicable to all media, including soil, in connection with a number of sites over which both EPA Region III and VDWM have jurisdiction. The letter also would assist in resolving issues relating to a site involving Atlantic Research Corporation (ARC).

Since the 1950's ARC has operated a manufacturing facility for solid propellant rocket motors in Gainesville, Virginia. Currently that plant is manufacturing rocket motors for the Tomahawk and Stinger missiles, among other DoD programs. During the 50's through 70's ARC, like other industrial users, did not handle solvents used for cleaning equipment and painting in the manner that they are now handled. Consequently, it was discovered in 1987 that there was limited soil and groundwater contamination by solvents at ARC's Gainesville facility. This was promptly reported to both VDWM and EPA Region III. A Consent Order under Section 3008 was entered into between Region III and ARC for study and cleanup.

ARC

a subsidiary of Sequa Corporation

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 19 1989

Mr. Thomas C. Jorling
Commissioner,
Department of Environmental Conservation
State of New York
Albany, New York 12233-1010

Dear Mr. Jorling:

I am writing in response to your letter of May 5, 1989, in which you ask numerous questions concerning the regulatory status, under the Resource Conservation and Recovery Act (RCRA), of environmental media (ground water, soil, and sediment) contaminated with RCRA-listed hazardous waste.

As you point out in your letter, it is correct that the Agency's "contained-in" interpretation is that contaminated environmental media must be managed as if they were hazardous wastes until they no longer contain the listed waste, or are delisted. This leads to the critical question of when an environmental medium contaminated by listed hazardous waste ceases to be a listed hazardous waste. In your letter, you discuss three possible answers (based on previous EPA positions and documents) which you believe address this question, and request the Agency to clarify its interpretation. Each of these is discussed below.

The first possible answer you cite would be that the contaminated media would be a hazardous waste unless and until it is delisted, based on the "mixture" and "derived-from" rules. As you correctly state in your letter, a waste that meets a listing description due to the application of either of these rules remains a listed hazardous waste until it is delisted. However, these two rules do not pertain to contaminated environmental media. Under our regulations, contaminated media are not considered solid wastes in the sense of being abandoned, recycled, or inherently waste-like as those terms are defined in the regulations. Therefore, contaminated environmental media cannot be considered a hazardous waste via the "mixture" rule (i.e., to have a hazardous waste mixture, a hazardous waste must be mixed with a solid waste per 40 CFR 261.3(a)(2)(iv)). Similarly, the "derived-from" rule does not apply to contaminated media. Our basis for stating that contaminated environmental media must be managed as hazardous wastes is that they "contain"

listed hazardous waste. These environmental media must be managed as hazardous waste because, and only as long as, they "contain" a listed hazardous waste, (i.e., until decontaminated).

The second possibility you mention is that environmental media contaminated with a RCRA listed waste no longer have to be managed as a hazardous waste if the hazardous constituents are completely removed by treatment. This is consistent with the Agency's "contained-in" interpretation and represents the Agency's current policy.

The third possibility you discuss comes from Sylvia Lowrance's January 24, 1989, memorandum that you cited in your letter. This memorandum indicates that OSW has not issued any definitive guidance as to when, or at what levels, environmental media contaminated with listed hazardous waste are no longer considered to contain that hazardous waste. It also states that until such definitive guidance is issued, the Regions may determine these levels on a case-specific basis. Where this determination involves an authorized State, such as New York, policy is that the State may also make such a determination.

Related to such a determination, you ask whether a risk assessment approach that addressed the public health and environmental impacts of hazardous constituents remaining in treatment residuals would be acceptable. This approach would be acceptable for contaminated media provided you assumed a direct exposure scenario, but would not be acceptable for "derived-from" wastes under our current rules. Additionally, consistent with the statute, you could substitute more stringent standards or criteria for contaminated environmental media than those recommended by the Federal EPA if you determined it to be appropriate.

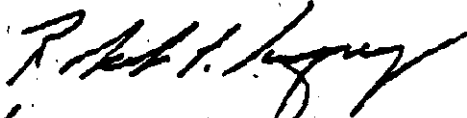
The Agency is currently involved in a rulemaking effort directed at setting de minimis levels for hazardous constituents below which eligible listed wastes, treatment residuals from those wastes, and environmental media contaminated with those listed wastes would no longer have to be managed as hazardous wastes. The approach being contemplated in the De Minimis program would be similar to that used in the proposed RCRA Clean Closure Guidance in terms of the exposure scenario (direct ingestion), the management scenario (not in a waste management unit), and the levels (primarily health-based).

Your final question related to whether the "remove and decontaminate" procedure set forth in the March 19, 1987 Federal Register preamble to the conforming regulations on closing surface impoundments applies when making complete removal determinations for soil. These procedures do apply when one

chooses to clean close a Hazardous waste surface impoundment by removing the waste. The preamble language states that the Agency interprets the term "remove" and "decontaminate" to mean removal of all wastes, liners, and/or leachate (including ground water that pose a substantial present or potential threat to human health or the environment (52 FR 8706). Further discussion of these requirements is provided in a clarification notice published on March 28, 1988, (53 FR 1144) and in OSWER Policy Directive # 9476.00-18 on demonstrating equivalence of Part 264 clean closure with Part 264 requirements (copy enclosed).

I hope that this response will be helpful to you in establishing and implementing New York's hazardous waste policies on related issues. Should you have additional questions, please contact Bob Dellinger, Chief of the Waste Characterization Branch at (202) 475-8551.

Sincerely yours,



Jonathan Z. Cannon
Acting Assistant Administrator

June J.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY RES

JAN 24 1989

MEMORANDUM

SUBJECT: Status of Contaminated Groundwater and Limitations on Disposal and Reuse

FROM: Sylvia K. Lowrance, Director *Sylvia K. Lowrance*
Office of Solid Waste

TO: Jeff Zelikson, Director
Toxics and Waste Management Division
Region IX

In your memo of December 16, 1988 and the attached materials, you stated your understanding of the current policy on the classification of contaminated groundwater and described issues which have arisen in California regarding reuse of contaminated groundwater from a Superfund site.

You have accurately stated the effects of the "contained in" policy which governs situations such as the one you have described. Briefly, a contaminated groundwater which has been treated such that it no longer contains hazardous constituents, need not be considered to be a hazardous waste, and beneficial reuse of the water is permissible. We have not yet issued definitive guidance on levels below which the groundwater is no longer considered to contain hazardous wastes. Until such definitive guidance is issued, the Regions may determine these levels on a case-specific basis.

It is our expectation that ultimately the guidance on levels of hazardous wastes which may remain will mirror the levels in the De Minimis rule which is now under development by OSW. I know that Region IX has been participating in the Work Group discussions and reviews of this proposal and I urge you to continue this involvement.

In its present form, the De Minimis approach contemplates levels based on health-based standards (where available), assuming direct exposure. With respect to the constituents of concern at the Fairchild Superfund site -- trichloroethane

Atlantic Research Corporation

Mr. David Bussard
February 21, 1991
Page Two

Pursuant to that Consent Order, as an approved interim measure, a pilot treatment unit was authorized using above ground bioaugmented soil venting. That pilot unit has been eminently successful, testing non-detect in three of the four soil piles. It is anticipated that further testing may show non-detect in the fourth pile. EPA Region III, applying the "contained in" rule, is prepared to authorize ARC to use the soil as clean fill on site.

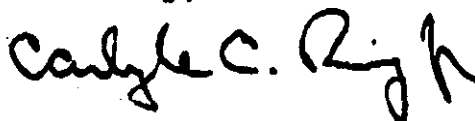
VDWM asserts independent RCRA jurisdiction and has stated that it applies the "contained in" rule to groundwater only. VDWM, however, has also indicated that a letter from EPA headquarters stating that the "contained in" rule applies to all media would be accepted by VDWM as a basis for expanding the "contained in" rule to soil treatment.

Because the pilot study was a success, ARC, under the Corrective Measures Study, contemplates using the above-ground pilot study and similar technologies for remediation of soil on the Gainesville site. Obviously it would be of no merit to incur the substantial cost of such remediation if VDWM under the "mixture" and "derived from" rules, requires the treated soil to be hauled to a licensed disposal facility or requires delisting after treatment.

In the event you have any questions concerning this request or need further information we would like to have a meeting with you. Robert Stroud, who has cognizance of ARC's Consent Order with EPA Region III, would like to be included in any meeting. I will give you a call in a few days to see whether you can respond favorably to our request or whether a meeting would be appropriate.

I had had a conversation yesterday with Mike Tetruska of your office and he suggested that I should put my request in writing.

Sincerely,



Carlyle C. Ring, Jr.

c.c. Robert Stroud
Michael Tetruska
Robert Greaves
John Ely
Patricia Ten

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

JAN 3 1989

MEMORANDUM

SUBJECT: Status of Personnel Protective Equipment as a RCRA Waste

FROM: Sylvia K. Lowrance, Director
Office of Solid Waste

TO: Timothy Fields, Jr., Director
Emergency Response Division

This memo is in response to your inquiry about our planned "de minimis" rule and about the status of personnel protective clothing and other debris in the interim.

The "de minimis" rule is intended to define levels of contamination below which wastes are not hazardous. In concept, this could apply to any type of material, including clothing and debris. However, there could be some difficulty in applying this approach to all of the materials of concern to you since test methods needed to determine the level of contamination may not be appropriate for all of the materials encountered. I have asked the staff responsible for developing the rule to consider this aspect of the "de minimis" determination as they proceed.

Until the time that a "de minimis" approach is available, there are several options for dealing with contaminated clothing and other similar debris.

Since clothing and the other materials of concern are not considered solid wastes, they can be dealt with through the "contained in" policy. That is, if the hazardous contaminant can be removed, the underlying material is no longer considered to be a hazardous waste and its disposal is not restricted. As you noted in your memo, this may not be appropriate in all situations, since it may generate large volumes of contaminated rinsate which must be treated before disposal.

Where it is impossible or impractical to remove the contamination, the materials must be treated in accordance with the applicable land disposal restriction (LDR) standards and other applicable requirements of Subtitle C. If the waste is one for which treatment standards have been set, the material must be treated to the applicable LDR levels, or a treatability variance must be granted. The determination of which option is more appropriate will depend on the nature of the underlying material and on the treatment methods available.

If the method of treatment necessary to meet the LDR treatment standards is inappropriate for the material in question, another method of treatment can be proposed through a treatability variance. Since the underlying materials vary greatly, it is not possible to give general guidance on what methods of treatment are appropriate in these circumstances. This decision must be made on a case by case basis.

If the waste in question is a soft hammer waste, as is the case in the situation described in the Region V memo which you attached, then the soft hammer provisions described in the August 17, 1988 Federal Register Notice on the First Third Final Rule should be followed. You should note that, although cost may be used to some extent in determining the practicability of treatment for soft hammer wastes, it is not a consideration in determining treatment for wastes which have standards in effect.

Finally, you cite the empty container rule as relevant here. While it is possible that the amount of hazardous waste remaining in a container could exceed that contained in clothing or other materials there is no "empty" rule for anything but containers, and that concept would not apply to the situations you have described.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 13 1986

OFFICE OF
SOLID WASTE AND EMERGENCY

MEMORANDUM

SUBJECT RCRA Regulatory Status of Contaminated Ground Water

FROM: Marcia E. Williams, Director *Marcia Will*
Office of Solid Waste

TO: Patrick Tobin, Director
Waste Management Division, Region IV

This is in response to your memorandum of September 18, 1986, regarding the regulatory status of ground water contaminated with hazardous waste leachate. To answer this question, one first has to determine the status of ground water. Under the regulations, ground water contained in the aquifer is not considered a solid waste, since it is not "discarded" in the sense of being abandoned, recycled, or inherently waste-like as those terms are defined in the regulations. See 40 CFR 261.2(a)-(d). Therefore, contaminated ground water cannot be considered a hazardous waste via the mixture rule (i.e., to have a hazardous waste mixture, a hazardous waste must be mixed with a solid waste; see 40 CFR 261.3(a)(2)(iv)). Nevertheless, ground water contaminated with hazardous waste leachate is still subject to regulation since it contains a hazardous waste. Therefore the treatment, storage, or disposal of ground water contaminated with hazardous waste leachate must be handled as if the ground water itself were hazardous since hazardous waste ^{1/} leachate is subject to regulation under Subtitle C of RCRA. However, if the ground water is treated such that it no longer contains a hazardous waste, the ground water would no longer be subject to regulation under Subtitle C of RCRA.

1/ This memo more precisely explains the position on ground water contamination presented in John Skinner's memo dated December 26, 1984.

Taking this interpretation and applying it to the example in your memorandum, the ground water containing a listed hazardous waste, once collected, is subject to regulation under the hazardous waste regulations. However, if as a result of treatment, the ground water no longer contains the hazardous waste leachate, the ground water would no longer be subject to the hazardous waste rules.

Your letter also raises the question of treatment of ground water within the context of corrective action. If the corrective action is taken at an interim status facility in compliance with a §3008(h) order, treatment can take place. We are considering the possibility of amending the regulations to clarify the relationship between corrective action and the reconstruction ban (§270.72(e)). More broadly, the Agency is currently examining the issue of whether permits should be required for any corrective actions. We are also developing rules for corrective action under RCRA §3004(u). Until this analysis is completed, if the corrective action takes place at a permitted facility, it can be handled as a permit modification.

Please feel free to call Matt Straus, of my staff, if you have any further questions; his telephone number is 475-8551 (FTS).

cc: Hazardous Waste Division Directors,
Regions I-III and V-X
Gene Lucero, OWPE
Lloyd Guerci, OWPE
Mark Greenwood, OGC
Steve Silverman, OGC